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The CHEMIST AND DRUGGIST

for RETAILER - WHOLESALER - MANUFACTURER

Established 1859 28 Essex Street, Strand, London, W.C.2 *Registered as a Newspaper*

No. 3081
VOL. CXXX

FEBRUARY 25, 1939

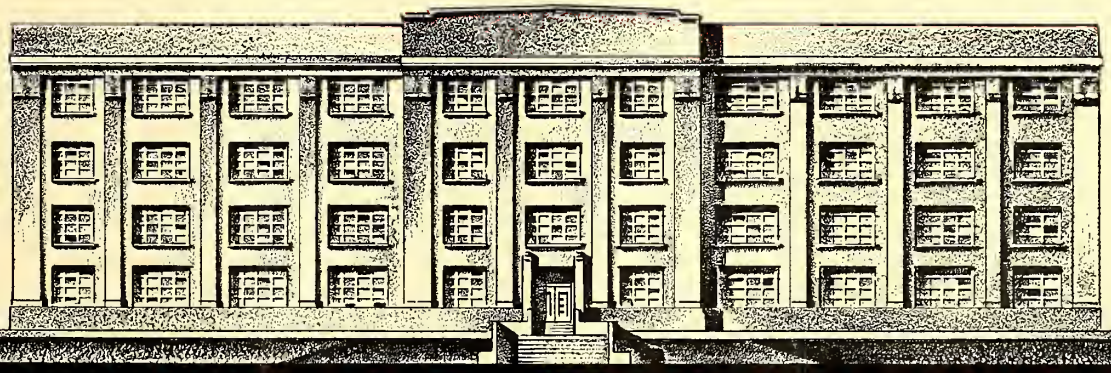
Annual Subscription (with Diary) 20/-. Single Copies 9d.

Lilly TRADE MARK

OF

BASINGSTOKE

Kindly note the new address of our Head Offices & Laboratories to which all communications should be sent on and after March 4



ELI LILLY AND COMPANY LIMITED

BASINGSTOKE AND LONDON

TELEPHONES: BASINGSTOKE 800 . . GERRARD 2144

LONDON OFFICE: 2, 3 and 4 Dean Street, W.1

DISTRIBUTING AGENT IN BRITAIN FOR ELI LILLY AND CO., INDIANAPOLIS, U.S.A.

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BULK DRUGS - DISINFECTANTS - TOILET PREPARATIONS - PACKED PHARMACEUTICALS

WRIGHT, LAYMAN & UMNEY *ltd*

SPRING BONUS TERMS

WRIGHT'S LYSOL

WRIGHT'S DISINFECTING FLUID

WRIGHT'S OPTICAL LOTION

These WRIGHT'S products show a very handsome protected profit if bought on the special terms available until March 31st. Your enquiries are invited.

"A reputation that is sound and enduring is more valuable than a passing success, however spectacular, and it cannot be built up in a day." For 50 years a policy of supplying only the finest pharmaceutical preparations at reasonable prices has been consistently maintained.

SOUTHWARK · LONDON
HOP·2315

R FOR SELLING 2 ITEMS INSTEAD OF ONLY 1

A bottle of "Milk of Magnesia" please

Certainly, Madam. . . . . Have you ever tried "Milk of Magnesia" TABLETS? They are very convenient to carry and are most effective.

The Mild, Safe Laxative Antacid

DISPLAY THEM—SELL THEM TOGETHER

PROPRIETARY AGENCIES LTD., 179 ACTON VALE, LONDON, W.3

"Milk of Magnesia" is the registered trade mark of Phillips' preparation of Magnesia

A A

Special WINDOW DISPLAY *Bonus Parcel of Tampax*

SANITARY PROTECTION WORN INTERNALLY

ORDER	COST	SELL FOR	PROFIT
One Dozen 1/6 Size	13/6	18/-	**4/6**
One Dozen 1/- Size	9/-	12/-	**3/-**
One Dozen 6d. Size	4/6	6/-	**1/6**
4 Special Bonus Packets	**FREE**	4/-	**4/-**

TOTAL OUTLAY 27/-
TOTAL PROFIT 13/-

48% PROFIT ON COST

This special bonus offer is for a limited period only —from March 1st to April 15th—for all orders of 1 dozen of each size of Tampax.

Make sure of this extra 4/- profit *now* by sending in your order for Tampax without delay. It means 48% clear profit on cost. An opportunity not to be missed on a line that sells as well as Tampax.

Tampax is the most sensational success of recent years. Already millions of packets have been sold—and the demand is increasing. Tampax is stocked by over 20,000 dealers, who report record sales for this sensational advance in sanitary protection.

Tampax brings you quick, easy profits *every month of the year*. It is easier to stock—easier to sell than sanitary towels. Supplied only in small packets of uniform type, Tampax needs a minimum of space for effective display.

A big National advertising Campaign is now running. *Women in your district will be buying Tampax where they see it prominently displayed.*

SOLE DISTRIBUTORS: SPLENDOR LTD., 5 BEASTMARKET HILL, NOTTINGHAM, *for* TAMPAX LTD., 10 BOLTON ST., LONDON, W.1. *Factory:* BELVUE ROAD, NORTHOLT, MIDDLESEX. Stocked by the leading wholesalers.

OVER 8,000,000 PACKETS OF TAMPAX HAVE BEEN SOLD

WOMEN BUY TAMPAX — *where they see it displayed!*

CHEMISTS NEED A GOOD LIBRARY

By installing a Scott's LIBRARY there is no need to buy books. You will have an unlimited stock of the most popular works of fiction at your disposal, and in addition you are assured of every assistance in organising and maintaining a complete and up-to-date LIBRARY.

NO Capital Outlay

NO Restrictions

NO Overhead Costs

NO Risk of Useless Stock

Very simple—Rent a Scott's LIBRARY, which requires the minimum of your time and attention; it will show you a handsome profit and

ATTRACT NEW CUSTOMERS TO YOUR SHOP

SCOTT'S LIBRARIES LTD.

42 NEWGATE STREET - - - - - LONDON

Put your rubber stamp on this page, tear it out and post it in ½d. envelope for full particulars. If you don't like tearing out the page, send a postcard

Other Products for you to display

Alka-Seltzer
Allenburys Diet
Allenburys Pastilles
Angiers Emulsion
Bovril
Bengers Food
Bob Martin's Condition Powders
Bournvita
Braggs Charcoal
Beechams
Bell's Cat Powders
Bemax
Brylfoam
Crookes Halibut Liver Oil
Carters Little Liver Pills
Calverts Tooth Powder
Cromessol Disinfectant Perfumes
Dettol
D.D.D. Prescription
Erasmic Shaving Stick
Famel Syrup
Fynnon Salt
Gibbs S. R. Toothpaste
Gibbs Dentabs
Gibbs Dentifrice
Gibbs Cold Cream
Gibbs Shaving Cream
Genasprin
Glymiel Jelly
Horlicks
Hinds Almond Cream
Instant Postum
Iron Jelloids
Kolynos
Liverpool Virus
Lux Toilet Soap
Macleans Brand Stomach Powder
Macleans Peroxide Toothpaste
Milk of Magnesia Tablets
Musterole
New Vinolia
Nostroline
Odol Toothpaste
Optrex Lotion
Pears Soap
Phillips Yeast Products
Phosferine
Ponds Creams
Sanatogen
Snowfire Jelly
Steradent
Scotts Emulsion
Silvikrin
Sloans Liniment
Sal Hepatica
Tokalon
Vaseline Hair Tonic
Vapex
Veno's Cough Cure

They are advertised regularly in the Radio Times

The Radio Times reaches about 3 million families each week. This means that its advertisements are read by one family in every four in *your* district. Consequently, the products which are regularly advertised in its pages are ensured of a steady demand among your own customers. You can turn this demand into profit for yourself by always keeping these goods in stock and displaying them well.

Feature goods advertised in the

RADIO TIMES

Reaches 1 in 4 of your customers

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... INCREASED ADVERTISING

National Advertising this year is bigger than ever, due to Moorland sales in 1938 again breaking all records.

These advertisements will bring you more customers, the merits of Moorlands will keep them for you.

Order direct on best terms and be assured of over 40% profit.

It pays to display

W. B. CARTWRIGHT LTD., RAWDON, LEEDS

MOORLAND BRAND INDIGESTION TABLETS

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NEW . . . an effective Show-card to encourage the Sales of

MERCOLIZED WAX

Show it and take advantage of constant advertising and the handsome profit now available.

16/- 28/- 2/- 3/6
per doz. retail

DEARBORN (1923) Ltd.

TELEPHONE: HOLBORN 9669

37 GRAY'S INN ROAD · LONDON · W.C.1

Excellent Show Material and Counter Booklets on request.

A BONUS of 10% on £3 assorted orders is offered for a display of MERCOLIZED WAX.

StaffAllenS

PYRETHRUM

and

DERRIS

PREPARATIONS OF ALL KINDS

●

LIQUID EXTRACTS
OLEO-RESINS
CRYSTALLINE ROTENONE
STANDARDISED POWDERS
STANDARDISED EXTRACTS
COLOURLESS EXTRACTS *made by a new patented process*

Write to :—

STAFFORD ALLEN & SONS LTD.

20-42 WHARF ROAD, LONDON N.1

Telephones : CLERKENWELL 1000 (7 lines)

C - O - B

CHEMISTS' OWN BRAND

C - O - B

PACKAGING

An outstanding method of Packing "OWN NAME" Pharmaceutical Products in modern and uniform style, which brings Repeat Business and establishes Goodwill.

C - O - B

ADVERTISING

A Sales-creating movement which includes schemes of Direct Advertising and facilities for Special Displays to increase the Sale of "OWN NAME" Products.

write NOW for full details to -

ARTHUR H. COX & CO. LTD., BRIGHTON 7.

EFFECTIVE STRENGTH **WITHOUT** DANGER...

The great success of 'Dettol' is due to its extraordinary combination of efficiency with pleasantness. It can be used at really effective strengths without danger or discomfort—without even staining; and its high germicidal efficiency is maintained in the presence of blood, and other organic matter.

The Rideal Walker test shows 'Dettol' to be three times more effective as a germicide than pure carbolic acid. Yet it is gentle to human tissue, non-poisonous, and pleasant to use—with a distinctly agreeable smell.

'Dettol' is packed in attractive bottles. It sells at a reasonable price. 4 oz. size 1/-, 8 oz. size 1/9, 16 oz size 3/-. Larger sizes for medical and hospital use

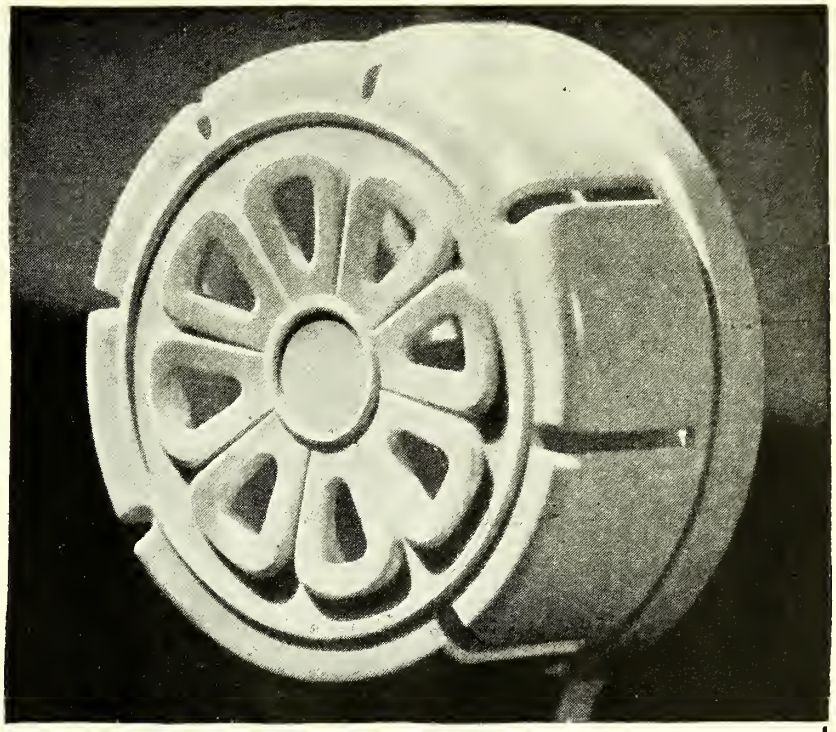
'DETTOL'

TRADE MARK

THE MODERN ANTISEPTIC

RECKITT AND SONS, HULL AND LONDON.
(PHARMACEUTICAL DEPARTMENT, HULL)

The Aromair DEODORISER



Offered in a range of delightful colours

● **ECONOMICAL.** The deodorant supplied with the Container lasts for three months. Refills, lasting three months, cost 1s. 3d. each, which means approximately 1d. per week.

● **FRAGRANT.** No more unpleasant disinfectant odours. The germicide, although very powerful, is carefully disguised by means of delightful perfumes — Carnation, Lavender, Pine, Rose and Verbena.

● **ATTRACTIVE.** The Free Offer Container is supplied in White only. But we can supply also, in a variety of beautiful colours, a Container complete with deodorant at the price of 3s. 6d. The colours, which will harmonize with almost any type of decoration are Amber, Blue, Green, Pink and Pearl. Please specify when ordering.

● **EFFICIENT.** The Deodorant is the most modern form of hygiene — a powerful germicide and disinfectant that is also a guaranteed moth-killer.

● **UNBREAKABLE.** The Container is made in Plastic that will stand rough usage, can be washed without losing colour or effect and can be hung or screwed to the wall as desired.

SELLS IMMEDIATELY *it is seen on your counter!*

The "Aromair" is the last thing in modern hygiene . . . a powerful germicide produced in five delightful perfumes (Carnation, Lavender, Pine, Rose and Verbena) disguising the disinfectant odour, ensuring a purified and pleasant atmosphere at all times. Offered in White and Five Colours (Green, Blue, Pink, Pearl and Amber).

TWO OFFERS

WHITE CONTAINER FREE with purchase of FOUR REFILLS @ 1s. 3d. each	WHITE or COLOURED CONTAINER Complete with Deodorant 3s. 6d.

TERMS: LESS 33⅓%

Supplied through Wholesalers only:

ODOSAN LIMITED (Dept. 3)

34 ALDERMANBURY, LONDON, E.C.2

Telephone: Metropolitan 3997

CARMAC LAUNCH NEW ADVERTISING CAMPAIGN FOR

Feetees

★ *New Trade Policy*

Convinced that big sales can be achieved by education in "feet fitness" and of the excellence of our product, we have formed a new company to market 'FEETEES,' the *non-greasy* foot cream. A *vigorous marketing policy* will be pursued which will be based mainly on the following points.

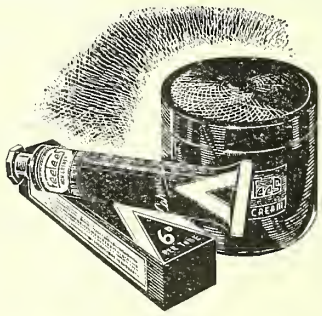
★Forceful advertising in women's papers, and ample sales aids, window bills, leaflets, and window dressing service by arrangement for every dealer.

★Education of the public to "make a habit of it" and use 'FEETEES' regularly, teaching that "prevention is better than cure" and pushing home the fact that physical fitness depends primarily on "feet fitness."

★No exaggerated claims. No disappointed customers asking for their money back.

★Building up a regular repeat-business which will mean steady sales.

★A liberal return to you for your part in distributing 'FEETEES.'

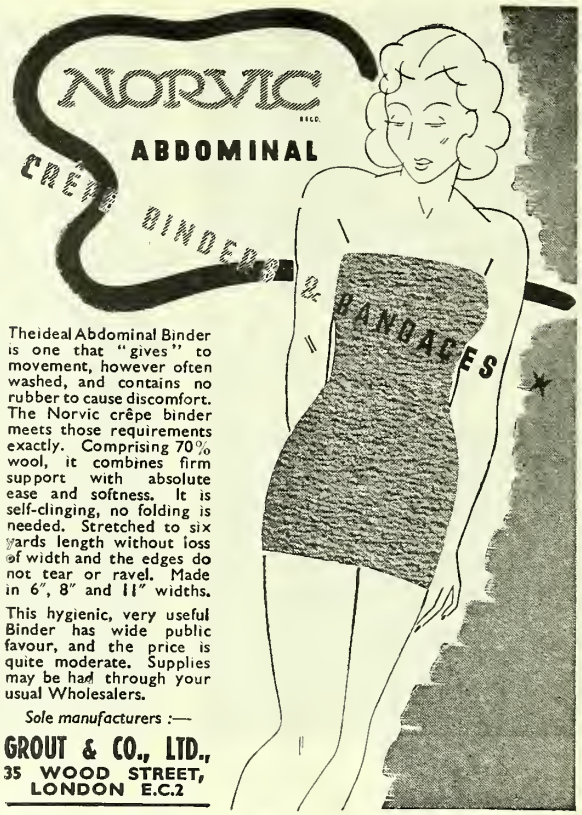


Feetees

Write us to-day for full trade details

Carmac Laboratories (1938) Limited
Hampton, Middlesex

Telephone : Molesey 2880



The ideal Abdominal Binder is one that "gives" to movement, however often washed, and contains no rubber to cause discomfort. The Norvic crêpe binder meets those requirements exactly. Comprising 70% wool, it combines firm support with absolute ease and softness. It is self-clinging, no folding is needed. Stretched to six yards length without loss of width and the edges do not tear or ravel. Made in 6", 8" and 11" widths.

This hygienic, very useful Binder has wide public favour, and the price is quite moderate. Supplies may be had through your usual Wholesalers.

Sole manufacturers :—

GROUT & CO., LTD.,
35 WOOD STREET, LONDON E.C.2

HOSCO

HOSCONIN
TABLETS

give instantaneous relief from

NEURALGIA — COLDS — FLU
HEADACHE — RHEUMATISM

Each tube of 20 tablets
SELLS **1/6**
COSTS **1/-**

Obtainable at your Wholesaler :

ULVIR Limited
18/20 BREWERY RD., LONDON, N.7

GEORGE MAW, FOUNDER OF THE FIRM 1807

S. MAW

★ Respectfully submits this his first Catalogue of Medical Cabinet Fittings, and other indispensable requisites for Hospitals, Surgeries, Dispensaries and Druggists' Shops, with that confidence which is due to the very extensive support which has been given to his previous unceasing efforts to render his Establishment (now of fifty years' standing) adequate to all the mechanical requirements of the Surgeon, Dispenser or Druggist. Various indeed are the qualities, both of material and workmanship, to be found in Surgeons' and Druggists' Architectural Carpentry and Cabinet Work : they are in so many instances so deteriorated, in order to meet competition contract prices, and to give an impression of cheapness, as to render them dear at almost any price. S.M. can only assure his friends of having made such arrangements as will enable him to supply every article in the following list, and to furnish estimates for whatever else may be required, at the most reasonable prices compatible with good materials and good workmanship.

Most of the articles described in this, as well as S.M.'s General Catalogue, may be seen in the Showrooms and Warehouses attached to the Manufactory, and selection made from an extensive stock.

★ ***Explanation***

Immediately above is the copy taken from an advertisement in a Maw catalogue published in 1860, about 80 years ago. (The emphasis or underlining is ours.) It is interesting to notice that, in those days, qualities of competitive goods were deteriorated because of competition.

We are not the cheapest House for many goods, because we only sell worth while products. The House is still a bulwark against shoddy merchandise and undesirable marketing practices. 132 years of successful trading in chemists' sundries is behind the firm to-day. MAW

Don't forget

ASMOLIN

for profitable Winter Sales

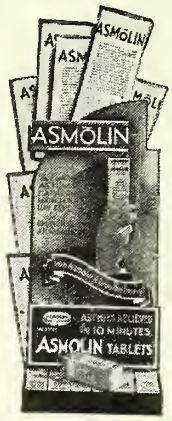
- 42% profit on sales
- Nationally advertised
- Generous window display material
- C.F. all over

PERMANENT BONUS TERMS

1 x 3/6 with half-doz. 2/- size, or 2 x 2/- with 7 x 2/- and 1 x 3/6 with 4 x 3/6

Prices 2/- 3/6
18/- 31/6

ON P.A.T.A. LIST



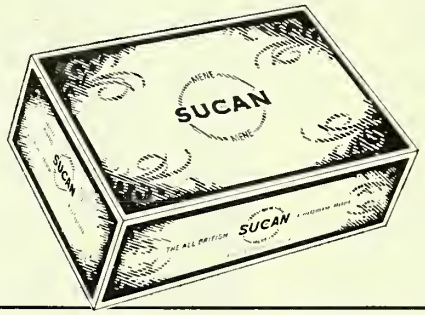
BRILLIANT NEW
3 COLOUR WINDOW
TRANSPARENCY

D. MAWDSLEY & Co.
2 RIGA ST., MANCHESTER, 4

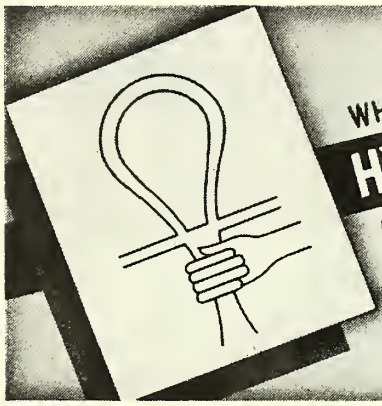
SU-CAN
SANITARY TOWELS

- MODERN
- HYGIENIC
- INSTANTLY SOLUBLE

POPULAR & PROFITABLE



ROBINSON & SONS LTD., CHESTERFIELD



WHOLESALE & EXPORT ONLY
HYPODERMIC NEEDLES
OF ALL DESCRIPTIONS

Original makers of
STAINLESS STEEL NEEDLES
OUR SPECIALITIES INCLUDE THE ORIGINAL RECORD FITTING AND N.H.I. SPECIFICATION HYPODERMIC NEEDLES.
Also the Famous 'SUMMIT' hypodermic needles now ALL BRITISH MADE.
Comprehensive catalogue sent on request.
Telephone :Thornton Heath 3252-3.

S. & R. J. EVERETT & CO., LTD.
939, LONDON ROAD,
THORNTON HEATH, LONDON, S.W.16

CO-OPERATION IN SALES PROMOTION

The Chemists' Friends Scheme

and

EVANS' *Pastilles*

The local organisation of

SIMULTANEOUS WINDOW DISPLAYS

is an important development of the C.F. movement

The full success of this excellent form of publicity calls for close co-operation between chemist and manufacturer

For our own part, we have prepared a special advertising scheme whereby we will gladly support simultaneous displays by intensive publicity in the local press

We will give every assistance in order to make our joint efforts fully successful, and further particulars can be obtained either from our representatives or direct from us

Evans Sons Lescher & Webb Ltd.

Liverpool and London

PLEASE NOTE
CHANGE

MR. H. JACCAZ
27 THICKET RD.
S.E.20

IS NOW BRITISH AGENT FOR
Lesquendieu
PARIS
TO WHOM ALL ENQUIRIES AND ORDERS SHOULD BE ADDRESSED

PARFUMERIE
LESQUENDIEU, S.A.
Offices & Warehouse
RAYNES PARK, S.W.20

Eucryl Dentifrices

TOOTH POWDER

DENTURE POWDER

BOUGHT ON DISPLAY TERMS YIELD-
PROFIT ON SELLING PRICE
39%
PROFIT ON BUYING PRICE
63·6%
SHOWCARDS ON REQUEST
EUCRYL LTD.
Manufacturing Chemists
SOUTHAMPTON

WANIE Blades
BONUS to dealers
FREE GIFTS obtainable through your usual suppliers.

24 Three Hole type FREE with every gross
1ᵖ each — 8/- gross

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2ᵖ each — 9/- per 100

DURING MARCH ONLY
ORDER NOW and get your BONUS

WHOLESALERS.—There is a BONUS FOR YOU ALSO
Write: LONDON & PROVINCIAL FACTORS LTD.
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or to 16 Withy Grove, Manchester

RECORD FIVEPOINT SYRINGES

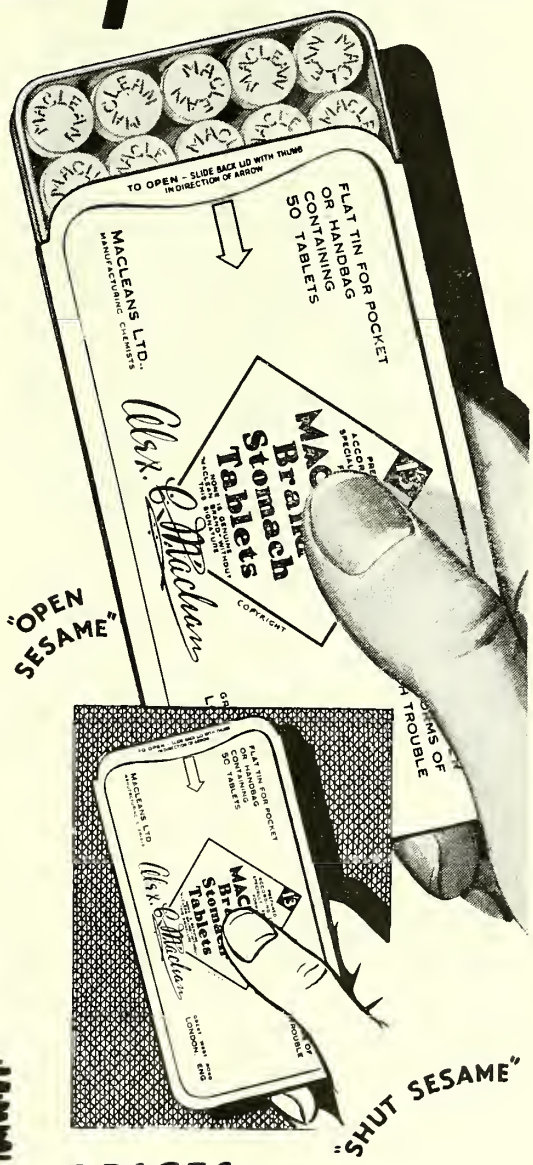
HYPODERMIC & SURGICAL SYRINGES OF ALL TYPES
Wholesale & Export only. For particulars apply to the Manufacturers
GENERAL SURGICAL COMPANY LTD.
Gensurco House, Rosebery Avenue, London

Meet us at the-
LONDON OLYMPIA,
STANDS Nos.
E1247 & E1248
WARDONIA
RAZORS & BLADES
Make the "Wardonia" Stands your headquarters during your visit to the Fair.
Sole Makers:
THOMAS WARD & SONS, Ltd. Wardonia Works, Sheffield 1, England

MACLEANS *present*

NEW WIZARD TABLET PACK!

Opens and shuts with one hand



Here's a pack which is going to speed up turnover in Maclean Brand Stomach Tablets! A flat, wafer-thin, non-spill, pocket tin with a cunning slide top that *opens and shuts with one hand!* And opens in such a way that the tablets can't fall out! Our customers have been asking us for Maclean Brand Stomach Tablets in a wider range of tins for a long time, for the demand has been insistent. But we have waited until we could produce the perfect pack—and here it is—the best tin of its kind. 50 tablets retail at 1/3.

ALSO SMALLER HINGED-LID TINS TO RETAIL AT 6d.

For sufferers who need carry only a few tablets at a time we have produced in addition to our 9d. size, a new 6d. size, containing 15 tablets.

NATIONAL ADVERTISING CAMPAIGN GOES ON FROM STRENGTH TO STRENGTH

Advertising for Maclean Brand Stomach Powder and Tablets will go on with renewed vigour. Day in, day out, hundreds of influential newspapers and magazines carry this advertising into every home in the country. Popular radio concerts, featuring big stars, come over the air, week after week. Link your window shows with this selling force.

PRICES

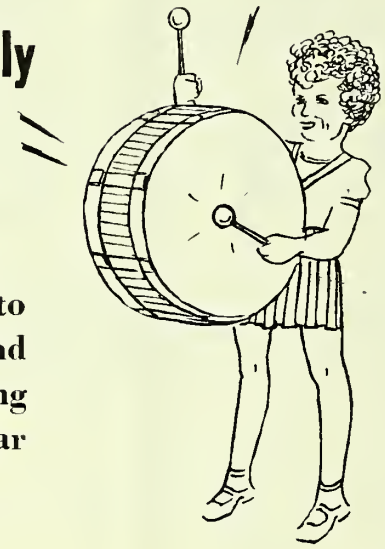
Slide tin, 50 Tablets, retail 1/3, 11/6 doz.
Medium, 25 tablets 9d., 7/- per dozen.
Vest pocket hinged-lid tin, 15 tablets, retail 6d., 4/6 per dozen.

Macleans Limited, Great West Road, Brentford, Middlesex. EALing 6616

MACLEAN Brand STOMACH TABLETS

BOOM!

says Tilly



. . . . . and she's right! It's going to be a boom year for Curly Top and Vosemar—the largest National Advertising Campaign yet released for these popular lines has commenced.

6 MILLION ADVERTISEMENTS

ARE APPEARING EACH MONTH in over 40 NATIONAL PUBLICATIONS

Make a point of seeing that Curly Top and Vosemar are prominently displayed, and get *your* share of these profit-making lines. Liberal display material will gladly be sent.

WAIT FOR IT!—Vosene is nearly with you.

See CHEMIST & DRUGGIST, MARCH 25th.

VOSEMAR LTD. • BURY • LANCASHIRE

An
ADDIS
Winner
EVERFAST
NAIL BRUSH
2/6
MADE IN ENGLAND THROUGHOUT BY ADDIS OF HERTFORD
New in design, beautiful in appearance, practical in use, CATALIN adds distinction and new lustre to the products of one of the oldest brush makers in England, Messrs. ADDIS of Hertford.
Non-inflammable, hygienic, odourless, tasteless.
Catalin
REGD. TRADE MARK
CATALIN LIMITED : WALTHAM ABBEY : ESSEX

I'M JOHNSON'S BABY PANDA

I'm going to help you sell more

JOHNSON'S BABY PRODUCTS

This fluffy toy panda is so adorable that every woman will want him for baby or herself. And there's only one way your customers can get him — buy more Johnson's Baby Products from you.

TO HELP YOUR SALES

Bigger advertising than ever
14" x 26" display sent with every direct order
Leaflets for your customers supplied on request

Already the best selling Baby Powder - you'll sell more still.

As good for baby's skin as Johnson's Baby Powder! Women must buy them to get the free Panda — be ready for a jump in sales!

★ Free Baby Panda for your window with every order of more than three dozen tins of Johnson's Baby Powder.

★ **SALES OF JOHNSON'S BABY CREAM AND BABY SOAP ARE GOING UP TOO**

★ Women get the Panda free by saving lids from Johnson's Baby Powder and cartons from Johnson's Baby Soap and Baby Cream. 12 Lids and cartons alone, or 6 with 6d. in stamps or P.O., is all they need. But they must buy *all* Johnson's Baby Products, because their set of 12 or 6 lids and cartons must include at least one of each type. So be ready with supplies of Johnson's Baby Cream and Baby Soap as well!

THE OFFER CLOSES AUGUST 31ST

JOHNSON AND JOHNSON (GT. BRITAIN) LTD · SLOUGH · BUCKS.

These Booklets

stimulate your sales

Ask

FOR A FREE COPY

of this Booklet - "HYGIENE FOR WOMEN"

Containing FACTS about RENDELLS

Ask us for a supply direct.

W. J. RENDELL LTD.

HARDWICK HOUSE, 161-5, ROSEBERY AVENUE, LONDON, E.C.1.

BEAUTIFUL

Glassware

We create and manufacture high quality glassware for cosmetics and perfumery

WOOD BROS. GLASS CO. LTD.

ESTABLISHED 1828

BARNSLEY ENGLAND

CAN YOU DO WITH A GOOD (BUT NOT TOO GOOD-LOOKING) UNPAID ASSISTANT?

A recent studio portrait of Signor C. X. O'Cephalides Canis

THAT'S just what CTENOCEPHALIDES CANIS—that dirty dog flea — is in chemists' shops throughout the land.

WEEK BY WEEK in the dog papers he's busy selling the idea of the Cooper Health Routine to dog owners and breeders—the simple routine that keeps dogs free from worms and otherwise fit and happy. It gives you chemists three sales instead of one and nine times the profit in the year, for it sells you Pulvex and Cooper's Vitamin Ration *regularly*, as well as the occasional bottle of Cooper's Liquid Worm Remedy.

THAT DIRTY DOG FLEA is called in on the job because he's responsible for 87% of tapeworm infections. The Cooper Health Routine is to blot him out with Pulvex—no flea can live on a Pulvex'd dog within a week of your dusting him—which puts paid to tapeworms; and to prevent the eating of excrement—the main cause of roundworms—by giving the dog Cooper's Vitamin Ration on his main meal every day. Its vitamins A, B, and D, plus iodine and the vital mineral salts, build up his resistance to all other infection too.

IF YOU HAVEN'T a vet. counter already, you'll find the Cooper Health Routine an excellent thing to start with and a dependable mainstay. Display these Cooper products in your window and on your counter and get your share of the £ s. d. which that dirty dog f£ea is pulling to the trade.

THE COOPER HEALTH ROUTINE

3 Gives you Chemists SALES INSTEAD OF 1

PULVEX VERMIN POWDER	COOPER'S VITAMIN RATION	COOPER'S LIQUID WORM REMEDY
6d. and 1/3 sprinkler tins	1/6, 2/9, and 4/6	Small dogs 1/3, larger dogs 2/6 bottles

TRADE TERMS — less 33⅓% and less 5% cash monthly

COOPER McDOUGALL & ROBERTSON LIMITED, BERKHAMSTED, HERTS

B B

NEW PRODUCTS

now being advertised to the Medical Profession

PANTAVENE Brand Tablets

A natural neuro-muscular tonic containing the active principles of Oats (Avena Sativa) indicated in all Asthenias, Debilitated States, Hypotension, etc.

Supplied in boxes of 60 tablets. Retail 4/-, Wholesale 36/- per doz.

URANDIL Brand Ointment

An Ointment of unique composition by means of which the action of nascent Iodine combined with the radio-activity of Uranium can be effectively utilised in the treatment of Dermatoses.

Supplied in tubes of 1 oz. Retail 2/6, Wholesale 22/6 per doz.

Literature and copy of new Price List on request from

THE ANGLO-FRENCH DRUG CO. LTD., 11-12 GUILFORD STREET, LONDON, W.C.1

The Outstanding Bronchial Pastille of Recognised Merit and Popularity

VOX

BRONCHIAL PASTILLES

SURE SHIELD SERIES REGD REGD BRAND SURE SHIELD

ATTRACTIVE DISPLAY MATTER

8-lb. lots 2/6 per lb. 14-lb. lots 2/3 per lb. 28-lb. lots 2/- per lb.
With Free 2-lb. Counter Glass Show Jar.

ATTRACTIVE WINDOW DISPLAY MATTER

12 doz. 2-oz. Cartons, 2 doz. 4-oz. Cartons, free per 28 lb. The formula is printed on every carton. Special quotations for 56-lb. and 1-cwt. lots.

VOX PASTILLES in Tins

Small 4/6 per doz., 48/- per gross. Large 8/6 per doz., 96/- per gross

THOS. GUEST & CO. LTD.

Manufacturing Chemists, **CARRUTHERS ST., MANCHESTER 4** London Warehouse : 15 & 16 Jewry St., E.C.

TWO 'Script' LINES

EYE Script

FOR CLEANSING THE EYES

8D BOTTLES - - - 4/6 DOZEN
1/- BOTTLES - - - 8/- DOZEN

THE SUCCESS OF THIS LINE IS INDICATED BY THE CONTINUOUS REPEATS

EPHEDRINE

NASAL Script

FOR CATARRH, HAY-FEVER, COLD-IN-HEAD

1/- BOTTLES - - - 7/6 DOZEN

BOTTLES FITTED WITH SPECIAL DROPPER

•

SELLS ALL THE YEAR ROUND . . .

THESE LINES WILL GIVE SATISFACTION TO YOUR CUSTOMER AND PROFIT TO YOURSELF

POTTER & CLARKE LTD.

60-64 ARTILLERY LANE, LONDON, E.1

Grams: Horehound, Phone, London Phone: BIShopsgate 4761 (6 lines)

MANCHESTER, 77 DANTZIC STREET

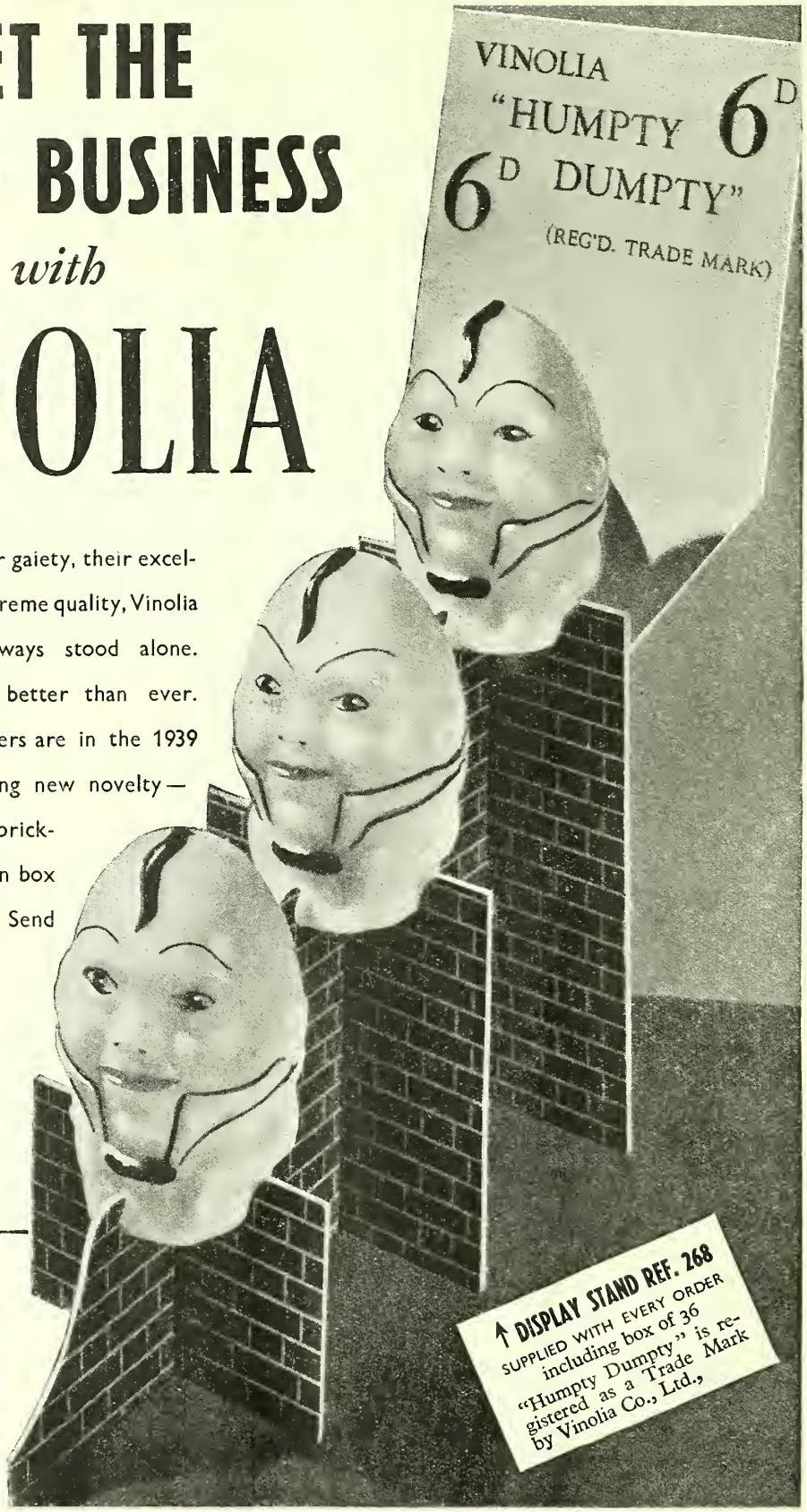
GET THE EASTER BUSINESS *with* VINOLIA

For their novelty, their gaiety, their excellent value, and their supreme quality, Vinolia Easter lines have always stood alone. This year's range is better than ever. All the proved big sellers are in the 1939 range with a fascinating new novelty—Humpty Dumpty, in "brick-wall" box of 6, in plain box of 36 and in egg-cups. Send for Illustrated List and terms.

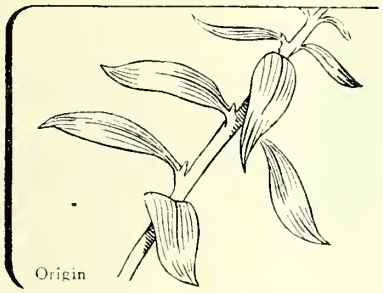
★

VINOLIA Co., Ltd., BEBINGTON, WIRRAL, CHES.

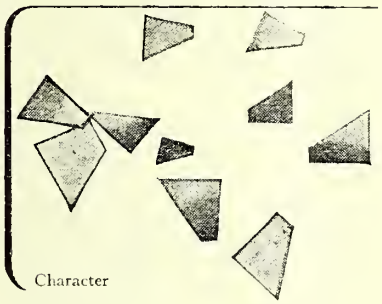
VT176/551



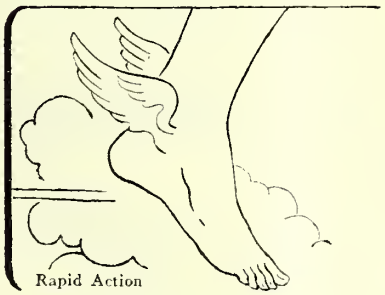
Things you should know about Digoxin (B. W. & Co.)


Origin

DIGOXIN is isolated from leaves of *Digitalis lanata* which is more active therapeutically than *Digitalis purpurea*. Pioneer investigations and the subsequent isolation of DIGOXIN were carried out at the Wellcome Chemical Works.


Character

DIGOXIN is a single, pure glucoside, occurring as a micro-crystalline powder of known and definite chemical constitution. Upon hydrolysis it yields one molecule of digoxigenin and three molecules of a sugar, digitoxose. It is stable in the solid state and in solution.


Rapid Action

DIGOXIN acts rapidly by mouth or by injection. Its effects are marked in all conditions demanding digitalis therapy. Particularly in auricular fibrillation.

TRADE MARK **'TABLOID'** BRAND **DIGOXIN** *For Oral Use*
SOLUTION of DIGOXIN (B. W. & Co.) *For Oral Use*
TRADE MARK **'HYPOLOID'** BRAND **DIGOXIN** *For Injection*
See BURROUGHS WELLCOME & CO. PRICE LIST

BURROUGHS WELLCOME & CO., LONDON
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SUPREME QUALITY IS BURROUGHS WELLCOME QUALITY

CHRISTY'S CACHET MACHINES

Various types in stock

Prices from
4/6 *each*

Write for illustrated leaflet

THOS. CHRISTY & CO., LTD.
4/12 OLD SWAN LANE
LONDON, E.C.4

At last the SURE SPECIFIC for DERMATITIS ECZEMA

and other skin AFFECTIONS

Hundreds of thousands of sufferers have been waiting for JUVETEX . . . the FIRST and ONLY sure, safe SPECIFIC for DERMATITIS and other skin affections. Successfully tested and proved over a number of years. Used and prescribed by Medical Institutions. JUVETEX is totally different from any other treatment. It meets a very definite public demand. *Order stocks NOW and reap your share of the generous profits.*

OVER 2,000,000 SUFFERERS WILL SEE THE NATIONAL PRESS ADVERTISING

BE READY! FILL IN THE COUPON NOW for full particulars of generous Trade Terms and attractive FREE Showcards and Counter Leaflets.

RETAIL PRICE 4 oz. bottle 2/6 WHOLESALE PRICE 22/6 per doz.

YOUR WHOLESALER STOCKS JUVETEX Specific for DERMATITIS, ECZEMA, and other SKIN AFFECTIONS.

JUVETEX
Regd. Trade Mark BRAND

COUPON
FILL IN THIS COUPON NOW
Please send me full particulars of Trade Terms, Showcards, Leaflets, etc.

SOLE DISTRIBUTORS
SPLENDOR LIMITED
S Beastmarket Hill, Nottingham

Name .....
Address .....

SHOWING A GENEROUS MARGIN OF PROFIT TO THE RETAILER

P.P.

The CHEMIST AND DRUGGIST
for RETAILER - WHOLESALER - MANUFACTURER
The official organ of The Pharmaceutical Society of Ireland, The Pharmaceutical Society of Northern Ireland, The Chemists' and Druggists' Society of Ireland, and of other Chemists' Societies in Overseas Dominions
Published Weekly at
28 ESSEX STREET, STRAND, LONDON, W.C.2
Telegrams : "Chemicus, Estrand, London" Telephone : Central 6565 (10 lines)
BRANCH OFFICES
MANCHESTER : 4 CANNON STREET (TEL. : BLACKFRIARS 3052)
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BIRMINGHAM : 111 NEW STREET (TEL. : MIDLAND 2921)
AUSTRALIA : 19 QUEEN STREET, MELBOURNE, C.1
NEW ZEALAND : 55a SHORTLAND STREET, AUCKLAND
PARIS : 155 AVENUE DE WAGRAM, XVIIe (TEL. : ETOILE 19-79)

News of the Week

Business Changes

MR. J. MORLEY, M.P.S., has opened a pharmacy at 125 Arnold Road, Bulwell, Nottingham.

National Register of Pharmacists

The following notice has been addressed to all members of the Pharmaceutical Society by the president, Mr. Thomas Guthrie:—

All members of the Society in Great Britain have received the form on which they may send for registration information concerning their present occupation and their intentions in the event of an emergency. At this stage, the register is not a scheme of service ; it is a register of information which can be given at once by every member. I therefore appeal for the form to be completed and returned immediately upon its receipt. Will members be good enough to assist the staff who have to compile the register by refraining from corresponding on the subject at the present time and by enclosing nothing with the form.

Chemical Industry Statutory Orders

The Association of British Chemical Manufacturers has published Supplement No. 2 to the second edition of the Index to Acts of Parliament and Statutory Rules and Orders affecting the chemical industry, containing the additions made during 1938. Copies, price 6d., may be obtained from the publishers, W. Heffer & Sons, Ltd., Cambridge.

Proprietary Articles Trade Association

ALTERATIONS IN PROTECTED LIST.—*J. Goddard & Sons, Ltd.*, Prices in Ireland (Eire) from March 1:—Goddard's plate powder, small size, 10d., 7s. 6d. doz.; Goddard's liquid plate polish, 1s., 9s. 6d. doz.; 1s. 9d., 15s. 9d. doz., subject to usual quantity discounts. *Glaxo Laboratories, Ltd.*, Glucose-D will in future be known as Glucodin (Glucose-D, G.L.).

DELETION.—Powell brand balsam of aniseed.

Social Events

SUCCESSFUL BIRMINGHAM DANCE.—Birmingham Pharmaceutical Association held a dance at the Botanical Gardens, Edgbaston, on February 15, at which nearly 200 members and friends were present. Mr. Maurice Smith, jun., acted as M.C. Prizes awarded during the evening were won by the Mesdames Armstrong and Stokes, the Misses Kitchen and Viney ; and Messrs. Powell, Herington, Sambidge and Hardy. Dancing continued until 1.0 a.m.

WOLVERHAMPTON'S DANCE AT DUDLEY.—A dance held by the Wolverhampton Chemists' Association in the Queen Mary ballroom, Dudley zoological gardens, recently, was attended by about 150 people. Messrs. Blenkinsop, Taylor and Frost acted as M.C.s, and were responsible for the arrangements. Prize-winners in novelty dances were the Misses Kidger, B. Partridge and B. Pedley, the Mesdames Parkes & Tomkinson ; and Messrs. L. Davis, Lavell, Pyrde, Round and A. Wyse.

BRIDGEND DINNER.—The Bridgend Branch of the Pharmaceutical Society held its annual dinner on February 15. Mr. R. H. Williams (Cowbridge) presided, and he was accompanied by Mrs. Williams, Mr. H. N. Linstead (secretary, Pharmaceutical Society), the local vice-president (Mr. Ivor Williams), Mr. C. Laviers (secretary), Mr. John Lewis (chairman, Bridgend Urban District Council), Mr. Holley, Cardiff, and Mr. F. James, Neath. A toast to the Pharmaceutical Society was proposed by the president and responded to by Mr. H. N. Linstead. During the dinner, Mr. R. H. Williams was officially presented with the chairman's badge by Mr. Linstead.

BIRKENHEAD DANCE.—Two hundred and fifty persons attended the annual dance and whist drive of Birkenhead and Wirral Pharmacists' Association, at the Birkenhead Town Hall, on February 17. In addition to the mayor and mayoress of Birkenhead, the guests included Mr. H. Graham White, M.P., Alderman A. W. Baker, Mr. Peter Grant, Councillor Mrs. Grant, and Dr. G. S. Swan. The dance, which as in previous years was in aid of Birkenhead charities, was organised by a social committee composed of Mr. Frank Howarth (president), Mr. Roy Pilkington (social secretary), and Mr. Fred Nichols (secretary), while Mr. Victor Younger acted as M.C. in the ballroom. Mrs. Howarth presented the prizes to whist winners as follows:—*Ladies*: 1, Mrs. Melville; 2, Miss Meadows; 3, Mrs. Burgess ; *gentlemen*: 1, Mr. Gray ; 2, Mr. Peter Grant ; 3, Mrs. Alfred Downing.

SOUTHPORT'S LADIES' EVENING.—The annual ladies' evening of the Southport Pharmacists' Association and Branch was held on February 7. Dinner was presided over by Mr. L. G. Meachin (president), and supporting him were Mrs. Meachin ; the mayor and mayoress ; the deputy mayor ; Mr. H. Orr (a past-president) and Mrs. Orr ; Mr. T. Pickering (a past-president) and Mrs. Pickering ; Mr. T. R. Newton (a past-president and now secretary) and Mrs. Newton ; Mr. Derham (auditor) ; Mr. Frank Naylor (M.C. for dancing) and Mrs. Naylor. The president, proposing "The Mayor and Corporation," said he was sure the toast would commend itself to his audience. They had now reached February, and congratulations were rather late in the day, but the lateness gave him the opportunity of congratulating the mayor and mayoress upon the able manner in which they were performing their many duties. The mayor replied. Mr. F. Naylor proposed the toast of "The Ladies," and Mrs. Meachin made a graceful response.—Dancing followed, a number of spot prizes being awarded.

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Blackpool

DINNER AND PRESENTATION.—Blackpool Branch of the Pharmaceutical Society held its annual dinner and dance recently. The guests included Councillor D. J. Bailey, J.P. (acting deputy mayor), Mr. J. H. Franklin (a member of the Society's council), and Mr. G. H. Buckley, F.R.C.S. (president, Blackpool branch, British Medical Association). Mr. F. H. Stuttard (chairman) proposed the health of the county borough of Blackpool, and Councillor Bailey responded. Councillor J. W. Huddart proposed the toast of the pharmaceutical Society, and spoke of the preparations for celebrating its centenary and of the projected new headquarters in London. Mr. J. H. Franklin responded, telling local pharmacists of the fine work the Council was doing in London. He said they were hoping that legislation would be possible whereby the chemists would benefit more than they had done in the past. Blackpool, he added, had invited the British Pharmaceutical Conference to come to the town, and the Conference Executive was anxious to come if a suitable date could be found. Referring to the National Register of Pharmacists, he said it would be under the Minister of Health, and would be of considerable benefit to the members. There seemed to be a feeling in Government circles that the pharmacists had not had a square deal in the past. The Register would be a great factor in linking the pharmacists and the medical profession. Mr. S. C. Coope proposed the health of the medical profession and Mr. Buckley responded. The toast of the ladies and guests was also proposed. During the evening a presentation of a clock was made to Mr. A. Sidebottom for his services as secretary of the Branch for several years.

MR. MCNEAL GIVES DEBATING POINTS.—At a meeting of the Blackpool Branch of the Pharmaceutical Society held on February 7, Mr. F. H. Stuttard in the chair, the speaker was Mr. J. F. McNeal (a member of the council). Mr. McNeal stated that it was due to the forceful presentation on his previous visit of complaints by the branch against drug stores run by relations of qualified pharmacists that he had taken the matter up in London. The outcome had been the test case of the Hygienic Stores, Ltd., the decision in which had been upheld in the high courts. This had led to much legal controversy and aroused the activities of co-operative societies and other combines. Some definition of the law was bound to be given in the near future. He stated that the Council's Law Committee had difficulty in proving (in law) the association between the drug store proprietor and the qualified relation, and asked that all branches of the Society should prime their local Member of Parliament with full particulars of the case for the pharmacist, so that when the law was brought forward for amendment he would be conversant with the details. Mr. McNeal spoke at some length of efforts to create a Pharmaceutical Corps within the Army, and his efforts to obtain recognition for the pharmacists by the granting of a commission. Unfortunately the War Office had refused this, and the problem was whether to set up the Corps and hope for commissions being granted on recognition of the merits of the pharmacist, or to try for a commission for all senior pharmacists in military hospitals and stations. A leading question on the subject of "pharmacy for the pharmacist" resulted in a debate, and Mr. McNeal stated that the committee of inquiry had been set up with the object of introducing a new pharmacy bill which would define the exact functions of the pharmacist and the doctor. The Society's building fund was next discussed, and Mr. McNeal stated that a calendar was to be issued on which would be printed the names of all who subscribed to the fund. Mr. Stuttard explained that the branch had been active and already forms had been signed to the value of £128; this was likely to increase to over £200. A suggestion was made of furnishing a room of the new building with the contribution of the Branch. The subject of territorial representation prompted Mr. McNeal to give several points of order in debate which might help the passing of a resolution on the subject after members had complained about the treatment of the motion put by the Mansfield Branch at the Edinburgh Conference. Mr. Coope mentioned the duties which, from his experience, a pharmacist was expected to do in field hospitals, and how little pharmacists' training fitted them for these duties. He suggested that they should have training in physiology, first aid and nursing in the curriculum. Mr. McNeal said that this principle was embodied in the proposed Military Pharmacists' Corps, and if successful might be applied to general training, but the qualifying syllabus was felt to be quite full enough. Mr. Stuttard proposed a vote of thanks, which Mr. Thompson seconded.

Bradford

TALK AND FILM SHOW.—At a meeting of the Bradford Branch of the Pharmaceutical Society held on February 7, a talk and film show was given by Mr. Haines (the Crookes Laboratories) on "Halibut-liver Oil." Mr. Haines traced the development of the oil, from the days when the livers were regarded as waste products to the present day's huge output. A vote of thanks was proposed by Mr. Webster and seconded by Mr. Pettyt). The following resolution was then put to the meeting: "That a Pharmacy Club be formed in Bradford, such a club to be financially independent, and entirely self-governed by its own officers, and from time to time, reports of the activities of the Club be received by the Branch." After the objects of the Club had been explained by its sponsors, Messrs. Webster and Walker, the proposition was carried.

PHARMACY CLUB FORMED.—Based on the pharmacy clubs of Glasgow and Sheffield, a similar club has been established by the younger members of the Bradford Branch of the Pharmaceutical Society. Among the enthusiasts behind the scheme are Mr. Geoffrey Webster (Burnells, Ltd., Laisterdyke) and Mr. H. J. Walker (L. M. Eastwood, Wibsey), who are chairman and secretary respectively. The plan was first projected at a meeting of the Branch on February 7, and on February 16 persons interested met at the County Restaurant—which has been made the club's headquarters—and put the club on its feet. Twenty enrolments were made and a number of other persons who were not able to attend intimated their intention of joining. Though the club will report periodically to the Branch on its activities, it is entirely self-supporting and is not confined to qualified chemists. The subscription rate of 7s. 6d. per annum applies to pharmacist members, representatives of wholesale drug houses, and any unqualified adult assistants who desire to join. Pharmacy students are admitted at 5s. and apprentices at half-a-crown. The formal nights, when the committee is responsible for the evening's programme, are on the second and fourth Thursday evening in each month, but members will also meet informally on the intervening Thursdays. Accommodation has been booked to the end of the year, but it is expected that during the summer the headquarters on some occasions will be a mere rendezvous for the start of some open-air activity. Periodically there will be a "grousers' night," when anybody with a feeling that something in pharmacy needs putting right will have the opportunity of ventilating his ideas and having them discussed.

Leeds

BUILDING FUND APPEAL.—The Society's new building fund appeal was launched, in Leeds, on February 17, at a conversazione arranged by Leeds branch at the Guildford Hotel, at which some fifty persons heard Mr. T. Marns give a lantern lecture on the new building. Refreshments were afterwards served and an appeal made for a local effort. On the motion of Mr. J. Judge, seconded by Miss F. Cousin, it was agreed that steps should be taken immediately to raise funds. On the proposition by Mr. J. H. Gough, seconded by Mr. N. N. Armitage, it was agreed that the appeal should be issued in the form of a memorial to the late F. Pilkington Sargeant, Leeds (a former president of the Pharmaceutical Society), who many years ago stressed the need for a new headquarters. The chairman of the branch (Mr. W. F. H. Kemp) and the secretary (Mr. G. C. Crummack) were authorised to issue the appeal. Mr. Kemp said he would set himself out to get at least twenty £10 donations. Mr. Marns was thanked for his visit, on the motion of Mr. T. Sturdy, seconded by Mr. G. S. Hall.

DEBATE ON CHAIN STORES.—At a meeting of the Leeds branch of the National Pharmaceutical Union held on February 14, Mr. E. Buckley in the chair, the proposition "That Chain Stores are Detrimental to Professional Pharmacy" was debated. Opening the debate, Mr. Moorhouse said that the chain stores were responsible for the additions to pharmacy of hardware, stationery and fancy goods, for the cutting of prices, for the dispensing of customers' own prescriptions without fee, and for professional discounts. Opposing, Mr. Peters said that the stores do not vitally affect the private chemist. Their chemist's department is a very small part of their business and the qualified man is rarely seen behind the counter. The weakness of private chemists was lack of unanimity and lack

of confidence in each other. Supporting Mr. Moorhouse, Mr. Stock said that the branches of the multiple shops were the training ground of the future pharmacists, who did not receive adequate training, because everything was supplied to the branches ready made from one manufacturing centre. They did not co-operate with other chemists and their advertising was detrimental to the private chemist. Mr. Hodgson was of the opinion that the multiple stores killed professional pharmacy years ago. The motion was carried.

London

London golfers.—The annual meeting of the London Chemists' Golfing Society was held at 17 Bloomsbury Square, W.C., on February 16. The following officers were appointed: —*President*, Mr. J. W. Quibell; *Captain*, Mr. F. Eric Lever; *Vice-Captain*, Mr. D. T. Jones; *Secretary and Treasurer*, Mr. W. M. Ballantyne; *Auditors*, Messrs. J. Y. Finlay and J. Jones; *Committee*, Messrs. W. Bennett, M. W. Carmichael, J. Deas, G. G. Gibson, L. J. Morson, C. H. Maile, H. R. Nightingale, P. O. Royle, F. G. Wells.

Social club inaugurated.—The staff of Schering, Ltd., High Holborn, London, W.C.1, inaugurated their newly formed social club with an informal dance at the Royal Hotel, W.C.1, on February 17, when 200 attended, including representatives of other English firms. Mr. A. W. Edwards (managing director of the company and president of the social club) extended a welcome to the guests, thanked the committee for their efforts on behalf of the club, and congratulated them in particular on the success of the first social event.

Association of Pharmaceutical Employees.—The fourth annual meeting of the London division of the Association of Pharmaceutical Employees was held in the lecture theatre at 17 Bloomsbury Square, W.C.1, on February 20, Mr. C. Devereux, M.P.S., in the chair. Mr. D. J. Frost (organising secretary), giving his report of the year's activities, said the position of the A.P.E. was one of increasing strength. Meetings and conferences held during the year were bringing in new members, and the administrative offices were dealing with inquiries from all over the country. The advisory committee's report also showed increased activity. More meetings, lectures and film shows than ever before had been held. The election of officers resulted in the re-election of Mr. Devereux as *Chairman* and of Mr. B. Williams, M.P.S., 80 Merewood Road, Barnehurst, Kent, as *Secretary* of the pharmacists' advisory committee.

Billiards and snooker.—At a match played on February 20 between teams representing The British Drug Houses, Ltd., and the Western Pharmacists' Association the results were:—

Snooker (two frames)

1. Rossie, J. ...	61 and 53	Cronin, E. D. ...	30 and 71
2. Fuller, W. ...	28 and 35	Bridge, D. M. ...	68 and 39
3. Stringer, F. ...	50 and 49	Griffith, H. C. ...	18 and 29
4. Ambler, L. ...	47 and 53	Eacott, R. G. ...	40 and 50
5. Mannakee, J. ...	63 and 58	Usher, W. ...	54 and 34
6. Lawes, H.C. ...	53 and 71	Pratt, E. J. ...	31 and 51
7. Voyez, A. ...	49 and 46	Evans, D. R. ...	23 and 47

The B.D.H. team thus won by ten frames to four. D. M. Bridge won the clock given by The British Drug Houses, Ltd., for the highest snooker break (23).

Billiards (100 up)

Rossie	64	Cronin	100
Fuller	100	Bridge	85
Stringer	98	Griffith	100
Ambler	47	Eacott	100
Mannakee	100	Usher	88
Lawes	100	Pratt	46
Voyez	100	Evans	96

Newcastle-upon-Tyne

Researches on suprarenal gland.—Newcastle and Northumberland Branch of the Pharmaceutical Society heard a first-hand account of original research work carried out by Dr. J. Secker (lecturer in physiology, University of Newcastle-on-Tyne), on February 9, under the title of "The Physiology and Pharmacology of the Suprarenal Gland." The lecture was illustrated with lantern slides. His research had resulted, he said, in a contradiction of the usually accepted view of the physiology of the suprarenal gland. The two parts of the gland, the cortex and the medulla, were distinct in character and function. The cortex developed in the embryo from a mass of tissue which formed the sex glands and was fatty in character. The medulla came from tissue which formed the sympathetic nervous system and resembled large nerve cells. The whole had a direct and ample blood supply. By artificially stimulating any ganglion of the sympathetic system positive reaction to the particular part of the body affected was produced, with contraction of the blood vessels, and consequent rise in blood pressure. He found that, on removal of both suprarenal glands, death ensued, but, on removal of the whole of one gland and the medulla only of the other the animal survived, thus proving that the cortex was essential to life. It had long been known that the medulla produced adrenalin, which was readily proved. Elliot, in 1904, thought that the medulla continually produced small quantities of adrenalin, which was stored at the nerve endings. Was this true or did the medulla throw out large quantities of adrenalin at a time of emergency? The speaker found that in less than one hour after removal of the suprarenal, the nictating membrane of a cat's eye failed to contract on artificial stimulation, but after injection of adrenalin a contraction was recorded. On injection of an extract of the cortex into the muscle he did not get a contraction of the muscle or a relaxation of the gut muscle, but, after injection of the extract into an animal whose suprarenals had been removed, the muscle responded to artificial stimulation of the nerve. From this he concluded that the extract provided something from which the nerve could produce the exciting substance. He also found that he could keep alive and in normal health dogs whose suprarenal glands had been removed. This extract of the cortex could restore the power of muscle contraction, and the effect lasted over a much longer period than that of adrenalin. He noted that while stimulating the membrane there was a corresponding rise in blood pressure, indicating that the activating substance produced in the muscle had been liberated also into the blood stream. Therefore, he suggested, the cortex had as its importance the production of some substance necessary for the normal muscle reactions of the body, while the medulla formed and liberated adrenalin only when the nervous system was excited in times of stress or emergency, and the effect of the adrenalin was added to that of the cortex secretion, thus giving the muscle extra power to meet the emergency. Dr. Secker was warmly thanked for the simple and lucid manner in which he had explained his highly technical research.

Norwich

Lecture on new building.—On February 1 a supper arranged by the Norwich Branch of the Pharmaceutical Society was followed by a lecture on "Pharmaceutical Headquarters Old and New," given by the vice-president of the Society (Mr. W. Deacon). A vote of thanks to the lecturer was proposed by Mr. J. De Carle Smith, junior, and seconded by Mr. J. C. Davies.

Lantern lecture.—Mr. James (Glaxo Laboratories, Ltd.) addressed the Pharmaceutical Society Branch on "Sulphonamides and Vaccine Therapy" (illustrated by lantern slides) on February 7. A vote of thanks was proposed by Mr. J. C. Davies and seconded by Mr. D. Large.

No local building-fund appeal.—A committee meeting of the Pharmaceutical Society Branch was held on February 8, when the question of making a special effort for the Society's Building Fund was considered. Mr. J. F. Collin said he felt the Council had committed the Society to more than was expected—hence this appeal to the members. He felt that the Council, before committing itself, should have taken the opinion of members. After some discussion it was decided to make no special local effort and that members should do as they felt best.

St. Valentine's dance.—At a supper-dance held in aid of the Society's Benevolent Fund, on February 14, every lady present received a valentine and a small gift. In addition there were many spot prizes. It is expected that the net proceeds will be about £13. The function was organised by the Benevolent Fund committee (secretary, Mr. G. Baskerville).

Shrewsbury

BUSINESS MEETING FOLLOWED BY LECTURE.—At a meeting of the Shropshire and Montgomeryshire Branch of the Pharmaceutical Society, held in Shrewsbury recently, it was announced that air-raid precautions first-aid classes were to be arranged for Shrewsbury in the near future, the secretary having been in touch with Dr. Taylor (County Medical Officer), who had promised to arrange them. The secretary was asked to read a letter received from the Pharmaceutical Society on the subject of the Gowan Cross memorial fund. Disappointment was expressed by all at the contents, and it was decided to defer the matter for discussion at some later date. The chairman (Mr. F. E. Hunt) read the list of subscriptions to the Society's Benevolent Fund, and remarked upon the poor response from the area. It was decided that a circular letter should be sent out to all members urging support. It was then unanimously decided that the secretary should write to the Pharmaceutical Society urging it to stand firm in the matter of Sections 8, 9 and 10 of Pharmacy and Poisons Act, 1933 (the sections about which co-operative societies had made representations). Finally, Mr. Ellery (Evans Biological Institute, Runcorn) gave an illustrated lecture on "Bacteriology and the Preparation and Standardisation of Antitoxins and Vaccine Lymph." Mr. A. E. White (principal, Shrewsbury Technical College) thanked Mr. Ellery on behalf of the Branch.

Miscellaneous

DANGEROUS DRUGS ACT CHARGE.—At Barrow-in-Furness Police Court, on February 13, Mr. Harry Last, M.P.S., was summoned under the Dangerous Drugs Act for not keeping every drug in his custody in a locked receptacle to be opened by himself or a qualified assistant. Defendant pleaded not guilty. An inspector called for the prosecution stated that on visiting the defendant's premises he found the dangerous drugs cupboard with the door closed and the key in the lock. Defendant stated that he had gone to lunch and had inadvertently left the key in the lock. The case was dismissed on the payment of costs.

The local branch of the National Pharmaceutical Union held a meeting at Kingston-on-Thames on February 7, when Miss B. Sharples (assistant secretary, N.P.U.) spoke on "The Service which is Different." Mr. W. Griffiths (president) was in the chair. Miss Sharples enumerated the benefits offered to pharmacists by the Union; referred to the Chemists' Friends scheme and the progress it was making; and asked for the full support of members. Discussion followed, in which many points were raised and answered by the speaker. A vote of thanks was proposed by Mr. Woolf and seconded by Mr. J. Roach.

LANTERN LECTURE.—A meeting of the Reading Branch of the Pharmaceutical Society was held on February 9, Mr. J. W. Todd in the chair, when Mr. W. E. James (Glaxo Laboratories, Ltd.) discussed "Some Trends in Modern Medicine." He gave a short historical sketch covering insulin, liver extract, vaccines, hormones, vitamins, sulphanilamide and stilbœstrol, following this with a more detailed account of their nature and application. The lecture was illustrated by lantern slides, including a chart depicting the hormones elaborated by the anterior lobe of the pituitary body. Among those who took part in the discussion were Messrs. Band, Bate, Comyns, Hargreaves and the chairman and secretary. A vote of thanks was proposed by the secretary and seconded by R. Comyns (vice-chairman).

PHARMACY AS AN ORGANISED CALLING.—A meeting of the North Nottinghamshire Branch of the National Pharmaceutical Union was held at Mansfield on February 8, Mr. W. O. Pegg in the chair, when the speaker was Mr. R. H. Kemp (local organisation officer, N.P.U.). Mr. Kemp said that to outsiders pharmacy appeared to be a perfectly organised calling, but to chemists this was not the case. He detailed work done at N.P.U. headquarters, and mentioned particularly the benefits of the Chemists' Defence Association and the N.P.U. clearing house scheme. Mr. Kemp said that loss on bonus parcels was more than compensated for by accrued profits on Chemists' Friends goods by reason of their sale being confined to chemists. A discussion followed, when many questions were asked by the members. A vote of thanks was proposed to the speaker by Mr. W. O. Pegg.

PHARMACY ACT CASES.—At Lambeth, London, Police Court, on February 20, Max Debbs, Brixton, S.W., pleaded guilty to unlawfully selling by retail acetanilide in proprietary tablets without placing his name and address upon the label and not being an authorised seller. Defendant said he had been carrying on business at a cut-price shop for eighteen months, and was totally ignorant of the fact that he was not entitled to sell these tablets. A fine of £3 on each summons was imposed.—At Marlborough Street Police Court, recently, Farmers Chemists, Ltd., Finsbury Square, London, E.C., were summoned for unlawfully selling by retail strychnine in a proprietary medicine, the sale not being effected by a pharmacist, and also without labelling the container with the name of the seller and address of the premises. Defendants were fined £3 on each summons.—At Tower Bridge Police Court, London, on February 21, Stevens & Co., Ltd., Borough High Street, were summoned for unlawful use of the title "chemist" in connexion with the sale of goods. Mr. Jones, who prosecuted on behalf of the Pharmaceutical Society, said there was no personal control till 6 p.m., when a qualified chemist came in until 8 p.m. In a similar case, Coombes *v.* the Hygienic Stores, Ltd., the magistrate held there was no control, and an appeal to the High Court upheld his decision. A fine of £3 was imposed.—At the same court, on the same date, J. Mindel, fancy goods dealer, was summoned for selling codeine in a proprietary article without labelling it in the prescribed manner. Evidence was given of a previous conviction, and the magistrate imposed a penalty of £10 on the first summons and £5 on the second.

Irish Notes

Northern Ireland Benevolent Fund

A meeting of the Committee of the Northern Ireland Chemists' Benevolent Fund was held on February 10 at 73 University Street, Belfast. Mr. Fred Storey presided, and there were also present Messrs. J. Adams, J. R. Guiler, E. A. Richey, C. Abernethy, Walter C. Tate, J. McGregor (treasurer) and J. T. Nicholl (secretary). Applications for aid were considered and two grants were authorised. The draft rules as drawn up by the solicitor were examined in detail, some alterations and amendments were suggested, and the secretary was instructed to place these before the solicitor and in consultation with him to draw up an amended draft to be considered at the next meeting.

THE BELFAST ladies' pharmacy social committee held a successful whist drive in the Grand Central Hotel, Belfast, on February 16, in aid of the Northern Ireland Chemists' Benevolent Fund. The guests numbered about 300. Mr. Fred Storey (chairman, Benevolent Fund committee) was M.C., and Messrs. W. Tate, E. Ritchie, C. Abernethy, T. Nicholl, J. McGregor and R. Guiler acted as stewards. The committee in charge of the arrangements included Mrs. McGregor (chairman), Miss Crawford, Ph.C. (treasurer), Miss Forrest, Ph. C. (secretary), the Mesdames Storey, Martin, Abernethy, Hogg, Kyle, McDowell, and Maguire, and the Misses Laverty, Ph.C., Barry, Ph.C., and Murray. The prizewinners were:—*Ladies*: 1, Mrs. Swan; 2, Miss M. Marshall; 3, Mrs. D. W. Robb; half-time score, Miss E. McGuiness; consolation, Mrs. Black. *Gentlemen*: 1, Mr. Bell; 2, Mr. W. Crawford; 3, Mr. Deeny; half-time score, Mr. H. J. Gorman; consolation, Mr. Hall. Prizes were provided by The British Drug Houses, Ltd; Kodak, Ltd.; James Woolley, Sons & Co., Ltd.; Evans Sons Lescher & Webb, Ltd.; Yardley & Co., Ltd.; Coty (England), Ltd.; Pond's Extract Co.; Ayrton, Saunders & Co., Ltd.; Proprietary Perfumes, Ltd.; Max Factor, Hollywood and London (Sales), Ltd.; Innoxa, Ltd.; A. Wander & Co., Ltd.; Saville Perfumery, Ltd.; Stemco Ltd. Prizes were also given by Mrs. McDowell and Miss Forrest, and sweets were provided by T. McMullan & Co., Ltd., Shaw & Jamison, and Miss Murray.

Dail Discussion on Prescribing of Proprietaries

In Dail Eireann on February 9 Deputy J. Everett, Wicklow, asked the Minister for Local Government and Public Health if he would indicate the local authorities to which he had intimated that his Department did not approve of the practice of doctors in dispensaries and institutions prescribing patent medicines for patients, and also the action taken in the matter by the local authorities concerned.

Dr. C. Ward (Parliamentary Secretary to the Minister), replying, said: "A circular letter on this matter was sent to each Board of Assistance on February 13. It did not prohibit the use of patent medicines entirely. It pointed out that several patent and proprietary medicines were being requisitioned for patients, while medicines of at least equal standard and quality could be obtained from the Prescribed List of Medicines, and it was laid down in the circular that when a proprietary preparation is requisitioned in future a statement must be enclosed showing the necessity for such item, and why an efficient substitute cannot be selected from the Prescribed List. Boards of Assistance are expected to take action accordingly."

SUPPLEMENTARY QUESTIONS

Mr. J. Dillon, Monaghan: Arising out of the reply, is it conceivably the intention of the Department to preclude dispensary doctors from prescribing proprietary preparations of such firms as Parke, Davis & Co., Burroughs Wellcome & Co., and the Crookes Laboratories, and force them back to compounding from raw drugs?

Dr. Ward: It is not the intention of the Department to prohibit the use of patent medicines. If the Department is satisfied that there is full justification for prescribing patent medicines on the Prescribed List there will be no objection.

Mr. Dillon: Surely the Parliamentary Secretary, who is himself a doctor, agrees that physicians in rural Ireland are much safer and wiser in using proprietary preparations of well-known wholesale druggists than the unstandardised drugs that are sold to the central purchasing authority, nominally conforming with the Pharmacopœia requirements, and in fact having behind them no guarantee such as the proprietary preparations of the firms mentioned.

Dr. Ward: That aspect of the matter will be borne in mind when a decision on a particular application will be under review.

Mr. Dillon: Surely the Minister cannot take the view that it is desirable to put every individual doctor in this State, and in the service of a local authority, under the obligation of submitting a requisition with each application for drugs when the Parliamentary Secretary knows from his own experience that the practitioner would be wiser to make a selection?

Dr. Ward: The Deputy apparently assumes that patent medicines are not already on the Prescribed List. That is a wrong assumption. The Prescribed List includes well recognised remedies, and the purpose of the Circular was to ensure that there would not be wholesale substitution of patent medicines for remedies already on the List.

Scottish Notes

Miscellaneous

MR. JAMES D. CHRISTIE, M.P.S., Old Meldrum, has been appointed a justice of the peace for Aberdeenshire.

WORLD TOUR.—Mr. J. P. Gibb, a director of Raimes, Clark & Co., Ltd., manufacturing chemists, Edinburgh, accompanied by Mrs. Gibb, is sailing from London shortly on the "Waiwera" on a world tour.

LECTURE ON PHOTOGRAPHY.—A meeting of the Paisley Chemists' Association was held on February 13, when Mr. Stewart (Kodak, Ltd.) addressed the members on "Modern Photography." He exhibited a series of pictures to illustrate his lecture.

Topical Reflections

By Xrayser

Research and Manufacture

The career of Mr. David Lloyd Howard, to whose sterling worth a tribute is justly paid in your obituary notice on p. 181 of last week's issue, is linked in my mind with the editorial article on "Pharmaceutical Research in Industry" (p. 184). I have just been reading again the address delivered by Mr. Howard from the chair of the British Pharmaceutical Conference in 1926, a compendium of facts on chemical research and manufacture that students of the subject may well take as a basis for more detailed investigation. It is a safe deduction that most of the discoveries that have proved serviceable in medicine, industry and elsewhere have been the outcome of attempts to evolve new processes or to improve existing ones. These discoveries may not always have been the ones at which their originators were aiming; but they were usually aiming at something rather than working on abstract lines. This circumstance renders the covert innuendo of the "Journal of the American Medical Association" regarding laboratories equipped and maintained by manufacturing houses very ungracious. The Journal, it will be noticed, contrasts by implication the "innate curiosity which animates the medical investigator" with the more sordid motives supposed to actuate directors of research laboratories in commercial premises. The fact that Nehemiah Grew, a Fellow of the Royal Society and an honorary Fellow of the London College of Physicians, was in 1698 granted a patent for his Epsom salts does not necessarily bring him under suspicion of mercenary designs; and the case of Robert James, M.D., of Fever Powder fame, is equally pertinent. We have only to glance through the annual list of monographs presented at our own Conference, or the corresponding list of the American Pharmaceutical Association, to realise that a great part of the results of research then submitted for discussion emanates from the laboratories of manufacturers, one reason being that team-work and costly apparatus are now virtually indispensable conditions for making any advance on existing knowledge.

Ready-made Prescriptions

An intelligent patient, on receiving the prescription for three proprietary articles cited by you on p. 199, might well exclaim with Horatio, "There needs no ghost . . . come from the grave to tell us this." It was Sir Richard Quain, I believe, who once remarked that he never prescribed a substance not to be found in the British Pharmacopœia; and I remember the scorn with which, about fifty years ago, a pharmacist told me of a doctor of his acquaintance who, finding that a patient habitually took at bedtime a pill of a then widely advertised brand, advised him to continue doing so. Although the manufacture of proprietary medicines is now on a higher level, in respect of scientific control, than it has ever been, I cannot think that the ordering of three branded products in one prescription is to be justified unless in some exceptional circumstances, such as the undertaking of a long sea voyage. The ultimate evil of getting into a habit of writing prescriptions of this type seems to me to be that the prescriber must necessarily become narrow in his ideas, selecting the shortest road to a fee by roping in some preconceived medicament that is invariable in composition.

Hostelries, Ancient and Modern

At a lecture on "Pharmaceutical Headquarters and the Men Associated with Them" (p. 169) four pharmacists and four hostelries of a century ago were mentioned, almost with a suggestion that each of the then leaders in pharmacy took it in turn to entertain. A few years ago I had the pleasure of facilitating the task of a distinguished American scholar who, with exemplary thoroughness, was trying to locate the position of an inn formerly standing in the City of London. The situation of ancient landmarks, and in particular of those associated with pharmacy, should be a matter of interest to us all. In what Metropolitan buildings, for example, have the social functions of the Pharmaceutical Society been held, and how many of these buildings remain? We have of late years exchanged the modest comfort of "The Crown and Anchor" in the Strand and similar premises for the more opulent splendours of West End hotels; this fact may be to some extent accountable for the high-flown ideas of the nature and functions of new pharmaceutical headquarters to which you call attention on p. 183. I need not repeat anything I have previously written on this subject: I merely note here the addition—overnight, as it were—of another £40,000 to the cost.

Tuberculosis After Inoculation

When the hearing was resumed in the Dublin High Court on February 15 of the action brought by Michael O'Kenneally (*C. & D.*, February 18, p. 177) against the Wellcome Foundation, Ltd., Dr. Henry James Parish, M.D., principal bacteriologist at the Foundation, described how T.A.F. was prepared at the laboratories. Before T.A.F. reached the cold room for storage it went through a series of elaborate tests, Dr. Parish explained, in accordance with the requirements of the Therapeutic Substances Act. The filling room at the Foundation where the small bottles were filled was regarded as a sacred room. He only entered it himself to test the number of organisms in the air, and to ensure that the place was sterile. Although the Act did not require it the small bottles when filled with T.A.F. were subjected to further tests. Tubercle bacilli in suspension was put up in special square 50 cc. bottles and not in round 25 cc. bottles. Witness denied that there was any possibility of a worker bringing a bottle of tubercle bacilli into the building in which T.A.F. was stored. The T.A.F. used at Ring College came from two batches containing in all 13,211 doses, yet with the exception of Ring College no serious symptoms followed the use of the remainder of the batches. He agreed with the diagnosis that the lesions on the arms of the affected children at Ring were tubercular. The portion of the T.A.F. left over after Dr. McCarthy's inoculations at the College, and eight other bottles from the same batch were examined, but none of the bottles contained any organisms. Dr. Parish then told the Court that he carried out experiments with an infected syringe in sterile T.A.F. He put a minute drop of tubercle infected sputum on the plunger of the syringe and injected guinea pigs with one cc. of the T.A.F. with the same syringe. All the animals developed tuberculosis. Repeated experiments produced similar results. The sputum would be carried into the bottle and infect the entire contents. Inoculation of guinea pigs with a sterile syringe showed that the contents of the bottle had been infected, apart from the syringe contamination.

Dr. Parish was asked if as a result of the experiments which he had made he had satisfied himself that the alleged infection at Ring could have been caused by the contamination of the bottle by a syringe?—"Quite satisfied," he replied. Mr. Fitzgerald: However it might have been caused?—Yes. Questioned by Mr. Fitzgerald as to cold abscesses, witness said that possibly cold abscesses might contain enormous numbers of tubercle bacilli. If a doctor were unfortunate enough to insert his needle into a cold abscess that, to his mind, would be sufficient to contaminate a 25 cc. bottle of T.A.F. Mr. Fitzgerald: In doing so a doctor might be perfectly free from any negligence?—He might be. He might be unlucky. Replying to further questions by Mr. Fitzgerald, witness said that assuming that Dr. McGrath's hypothesis were correct that a senior member of the staff of the Wellcome Foundation laid down a bottle of T.B. and picked up a bottle of T.A.F., he would have noticed when he came to perform his experiments on the guinea pigs that the amount in the bottle was very different from the amount he had prepared. In other words, he would not have sufficient material to inoculate sixty guinea pigs. The worker would immediately realise his error and take steps accordingly.

Questioned as to the visit of Dr. McGrath to Beckenham, witness said that they were very glad indeed that someone from Ireland was coming over to inspect the laboratories. Mr. Fitzgerald: Particularly if he were in the position of State pathologist?—Yes. You knew he was advising the plaintiffs?—Yes. Was Dr. McGrath shown everything he asked to see?—He was. Were any questions addressed to you by Dr. McGrath as to the possibility of an occurrence such as he now charges might have happened?—Absolutely not. It was a bombshell the other afternoon when he made the accusation which he did. In cross-examination by Mr. Brereton Barry, Dr. Parish said that, in giving reasons against the possibility of substitution of bottles, he had based his views on two occasions on the theory that no trained bacteriologist would use a rubber cap with T.B. suspension. He had heard the evidence of Dr. McGrath that the latter did in fact use a rubber cap, but witness thought it was a serious error. Mr. Brereton Barry said that apparently it was a practice that could be carried out by a highly qualified man. Further questioned, witness said that he was strongly in favour of inoculation against diphtheria. Further cross-examined by Mr. Brereton Barry, Dr. Parish said he was still of opinion that the contamination of the T.A.F. was introduced at the time of inoculation by faulty sterilisation, or in some other way. On March 6, 1937, he arrived in Ireland and was afforded every facility to examine the infected children who were at Ring College. Later the witness said he saw the sterilisation apparatus at Dungarvan Hospital. It was probably all right if properly worked. Without bacteriological tests, however, it was impossible to say whether it was or not. He was satisfied on examination that the last bottle used at Ring was absolutely sterile, but he could not exclude the possibility that there might have been a mild infection there in November 1936. Mr. Barry asked if it were true that a consignment of T.A.F. sent to this country since the Ring disaster was found by the Public Health authorities to contain acid-fast organisms resembling tubercle bacilli, and had been returned. Dr. Parish said the material returned was tested and found to be free of infection. The supposed organisms were present in very small numbers, and he denied they were acid-fast organisms, but believed they were something resembling them. The presence of phenol showed that tubercle bacilli could not have been present. The particular batch of T.A.F. referred to was withdrawn in Ireland but used up in England.

Monday's Proceedings

When the hearing was resumed on February 20 Dr. Parish told the court that he carried out experiments by contaminating a syringe with sputum to ascertain the contaminating effect of sputum falling on the instrument as suggested in the present case. Mr. Barry (for plaintiff): There was a difference between these experiments and conditions at Ring. There were no infected patients at Ring?—There were infected patients at the hospital at Dungarvan.

Dr. John Blacklock, Professor of Pathology at Glasgow University, chief pathologist to the Royal Infirmary, Glasgow, was next called for the defence. Dr. Blacklock said he made tests with T.A.F. from the Wellcome Foundation, including some from the batch P.512 used at Ring, and some he bought in Glasgow unknown to the firm. All the T.A.F. taken from different batches he found absolutely sterile, and free from any infection whatsoever. He introduced a small proportion of tubercle bacilli into some of this T.A.F. but after six days the bacilli was found to be dead. He carried out further experiments using a syringe with a bottle of T.A.F. as Dr. McCarthy, the doctor who had inoculated the Ring children, had used it, and found it was possible for a needle with organisms in it to contaminate a whole bottle of T.A.F. A single layer of tubercle bacilli sufficient to cover a threepenny piece would contain 50,000 million organisms. In the course of further examination Dr. Blacklock told of two unexpected visits he paid to the Wellcome Foundation Laboratories. On the first occasion they struck him as the tidiest laboratories he ever saw on a week-end. He had visited many large laboratories in Britain and abroad and on a prolonged second visit to the Wellcome Laboratories he found no unusual features as compared with other large manufacturing laboratories. In some respects the Wellcome Laboratories were a great deal better than others he visited. Questioned with regard to the prevalence of cold abscesses in the arm or humerus, Dr. Blacklock said he performed over 10,000 post mortems and in only one case did he find a cold abscess in that position. It was not suspected during the life of the patient.

Giving evidence with regard to the sterilisation plant in the Dungarvan Hospital, Dr. Blacklock said he had heard Nurse White's evidence as to how the dressings were sterilised in the autoclave there. All the air was not expelled and the temperature did not rise to 100 degrees. In his view dry heat at a temperature of 100 degrees for one hour at least was necessary to kill tubercle bacilli in suspension, so that it was quite possible the steriliser in the Dungarvan Hospital failed to carry out its purpose used in the way described. I would not, added the witness, approve of re-using soiled dressings as stated to have been done in this case. If you use a faulty steriliser, and re-use dressings there is every possibility of landing in trouble such as you have in the present case. The method used to cleanse the drum holding the dressings and instruments was not satisfactory, because ether is not a good antiseptic. Furthermore the

lid of the drum was not sterilised if I heard the evidence correctly. The syringe used may have been contaminated either with flecks of sputum, or it may have struck a cold abscess unsuspected by the doctor.

Professor J. W. Bigger, M.D., Dean of the School of Physic, Trinity College, Dublin, said bearing in mind the occurrences at Ring, he went to visit the Wellcome Laboratories in Beckenham in May 1937. In his view the precautions taken there were as good as, if not better than, those in other laboratories, including the Connaught Laboratory in Toronto, Canada, where he had opportunities of making minute inspections.

Further Evidence for the Defence

Professor J. W. Bigger again went into the witness box on February 21, when the hearing of the case was resumed. He said he was aware of the case which occurred at Bundenberg, Queensland, in January, 1928, when a Royal Commission was held following the deaths of some children there. Twenty-one children were injected with a toxin anti-toxin diphtheria prophylactic, all of whom became ill, and twelve of whom died. The material used was prepared in the Commonwealth State Laboratories and contained toxin and not toxoid used in the Wellcome material. In the Bundenberg case it was stated that the deaths were due to contamination introduced by the doctor who had used it. He had not taken the proper precautions. The importance of that particular case was that it was a parallel with the Ring case. Like the Ring case, the doctor started off with uncontaminated material which became contaminated by accident or negligence in the course of inoculation. Professor Bigger then told of experiments he carried out by contaminating the needle and plunger of a syringe with tubercle bacilli. He also carried out tests with dressings sterilised in the manner described at the Dungarvan Hospital, but the organisms on the dressings were found to be alive. "In my opinion," said the Professor, "from the statements I heard in evidence, and from my own experiments, I do not think that anyone could honestly hold that the so-called sterilisation in the District Hospital was either adequate or sufficient for any surgical or medical purpose." Mr. J. M. Fitzgerald (for the Wellcome Foundation): Does that include any immunisation against diphtheria?—Professor Bigger: For any injection. In the course of further evidence, Professor Bigger said since the Ring occurrence he had given 250 injections of Burroughs Wellcome T.A.F. There were mild reactions such as stiff or sore arms for a day or so, but then the injections were given to older people—medical students and nurses—who reacted more than children. When Mr. Kingsmill Moore, K.C., for the plaintiff, Michael O'Kenneally, proceeded to cross-examine Professor Bigger on the possibilities of a bottle of T.A.F. being contaminated at the laboratory, and the contamination held under the rubber cap of the bottle until pressure was applied to it by the doctor, Mr. Justice Conor Maguire intervened and said he could not allow the case to proceed on those lines. No evidence of this had been given to the jury by the plaintiff on which the jury could hang a finding. He thought it was accepted that there was sufficient phenol in each bottle of T.A.F. to kill tubercle bacilli within six days. The plaintiff's contention in opening was that a bottle of live tubercle bacilli had been substituted for T.A.F.

Miss Edith Till, supervisor of the filling department at the Wellcome Laboratories, stated she had never to deal with tubercle bacilli in culture or in suspension in her work. No one was allowed to enter the filling room except its staff, and it was kept locked when not in use. The staff wore special sterilised coats, caps and shoes, and crossed a mat soaked with disinfectant when going into the room. Miss Gladys Elizabeth Boorman, head of the packing department of the Wellcome Laboratory, described how all the trays of bottles of T.A.F. were dealt with. Dr. John C. Saunders, medical officer of health for Cork City, described an unexpected visit to Beckenham, and said that in his view the organisation and methods in use at the Wellcome Foundation Laboratories were absolutely first-class, and could scarcely be improved upon. The hearing was then adjourned to February 22.

Action of hesperidin.—The effects of hesperidin (vitamin P of Szent-Györgi) in capillary fragility were shown in several charts accompanying an article by Scarborough and Stewart in the "Lancet" (1938, II. 610). This substance has been claimed to be a regulator of vascular permeability, and the report showed that, given orally, it reduced the number of hæmorrhages in patients with vitamin deficiency.

Company News

C. J. Viner, Ltd. (P.C.).—Capital £500. Objects: To acquire the business carried on at High Street, Minchinhampton, Glos, as "C. J. Viner," and to carry on the business of pharmacists, chemists, druggists, etc.

Tower Pharmacy, Ltd. (P.C.).—Capital £100. Objects: To carry on the business of chemists, druggists, etc. Bertha Rothman, 92 Tower Bridge Road, S.E.1, director. R.O.: High Holborn House, 52-54 High Holborn, W.C.1.

Jacques (Worthing), Ltd. (P.C.).—Capital £600. Objects: To carry on the business of chemists and druggists, opticians, etc. The first directors are to be appointed. Solicitors: Ashby, Rogers & Fournier, 105 Newington Causeway, S.E.1.

Chatfields (Southwick), Ltd. (P.C.).—Capital £300. Objects: To carry on the business of chemists, druggists, opticians, etc. Sidney E. Chatfield, 35 Linton Road, Hove, Sussex, director. R.O.: 92 Albion Street, Southwick.

Maison Johns, Ltd. (P.C.).—Capital £100. Objects: To carry on the business of dealers in drugs, perfumes, medicines, dressings and appliances, etc. John F. Crippen, 19 Manor Road, Wallington, director. R.O.: 2 South Place, E.C.2.

Merchandising & Service Corporation, Ltd. (P.C.).—Capital £100. Objects: To carry on the business of pharmaceutical and manufacturing chemists and druggists, etc. The first directors are to be appointed. Solicitors: McKenna & Co., 31/4 Basinghall Street, E.C.2. No R.O. mentioned.

Fassett & Johnson (Ireland), Ltd. (P.C.).—Registered in Dublin. Capital £340. Objects: To carry on in Eire and elsewhere (wholesale or retail) the businesses of manufacturers of and dealers in pharmaceutical, medicinal, veterinary and toilet preparations, etc. The first directors are not named.

Lait de Cologne, Ltd. (P.C.).—Capital £100. Objects: To carry on the business of manufacturers of and dealers in cosmetics, soaps, perfumes, dyes, chemicals, etc. Eugene V. Questier, 1 Green Lawns, Ruislip, director. R.O.: 14 Hay Hill, Berkeley Square, W.1.

John Ronaldson & Co., Ltd. (P.C.).—Capital £5,000. Objects: To carry on the business of manufacturers, importers and exporters of and dealers in drugs, chemicals, oils, spices, acids, medicines, etc. The first directors are to be appointed. Solicitors: Herbert Smith, Cereal House, Mark Lane, E.C.3.

David Duncan, Ltd. (P.C.).—Registered in Edinburgh. Capital £350. Objects: To carry on the business of wholesale and retail chemists, druggists and opticians, chemical manufacturers, etc. Janet R. Black or Duncan, 15 Kingscourt Avenue, Kings Park, Glasgow, S.4, director. R.O.: 743 Gallowgate, Glasgow.

Sol Chemical Works, Ltd. (P.C.).—Registered in Dublin.—Capital £5,000. Objects: To acquire the business of manufacturers and sellers of sheep dip and other chemical products formerly carried on by Burkes Chemical Manufactory, Ltd., 19 MacCurtain Street, Cork. Joseph Sherling, 3 Bellvue Park, Cork, director.

Lucien Leroy, Ltd. (P.C.).—Capital £2,000. Objects: To carry on the business of manufacturers of and dealers in perfumes and essences, soaps, toilet preparations and similar articles; wholesale and retail chemists, druggists and herbalists, etc. Barnet Garfinkle, 10 Wellington Avenue, Tottenham, N.15, director. R.O.: 146 Bishopsgate, E.C.2.

Brooks & Co., Ltd. (P.C.).—Registered in Dublin.—Capital £500. Objects: To acquire the business of a pharmaceutical chemist, druggist, importer and manufacturer of pharmaceutical, medicinal, and other preparations now carried on by Lillie Bowden as "Brooks & Co." at 136 Lower Baggot Street, Dublin. Phyllis Bowden, 136 Lower Baggot Street, Dublin, governing director.

Companies dissolved.—Notice has been given in "The London Gazette" that the names of the following companies have been struck off the register and the companies dissolved:—Brettenham Chemical Co., Ltd.; Roy & Rex perfumes, Ltd.; Woodwards (Chemists), Ltd.

Edinburgh Evening Meeting

THE fourth sessional meeting of the North British Branch of the Pharmaceutical Society was held at 36 York Place, Edinburgh, on February 17, Mr. W. Spence Culbert (chairman of the executive of the North British Branch) in the chair. Mr. Culbert introduced Professor R. J. D. Graham, D.Sc. (a member of the board of examiners for Scotland), who gave a lantern lecture on—

The Plant Our Teacher

The student of botany is often amazed, Dr. Graham said, when he realises how plants have anticipated the devices and discoveries of man. During the intake of water pressures are set up within the seed and the seed coat ruptures. Even the rocks may be rent asunder by the roots of plants using water pressure for the purpose. In the early stages of its growth the seedling must draw on a supply of energy. Approximately nine-tenths of the seedlings obtain this energy from oil stored within the seed while man is still content to use coal. Man lags behind the plant in his inability to manufacture food from simple substances like water and gas, nor can he achieve the plant's method of raising water as seen in the giant trees. Scientists still argue how the feat is accomplished, meanwhile the plant lifts the column of water 300 feet into the air. Plants grow towards the light, and they sense the direction from which the light comes. Many botanists hold that the lens-like swellings on the skin of the plant inform the plant whence the light comes. It is certain that these "eyes" form very perfect images of objects external to the plant and may, therefore, focus the light within the plant. Consider the surgery by which trees secure their leaf fall in the autumn. No open wound is ever seen, though a scar remains to mark where each leaf was attached. The tree prepares for the cutting off of its leaves long before the actual time of shedding, a state of things yet beyond man's attainment. Two of the staple industries of our land depend upon the work of a very simple plant. The waste products of the yeast plant raise our daily bread and also replenish the bottles in the cellar.

DISCUSSION

In the discussion which followed, Professor Graham said that the idea of the sleep movements in leaves and flowers was to protect the delicate plant organs from the great radiation which goes on when the sun goes down. It did not matter whether the leaves folded upwards or downwards. So long as they were not at right-angles to the radiation currents they would not be exposed to the changes in temperature.

The chairman then called upon Dr. E. G. V. Percival (also a member of the board of examiners) to give his address on—

A Note on the Chemical Constitution of Agar-Agar

For a compound so widely used, Dr. Percival said, it is surprising that so little is known of the constitution of agar. Those who have worked with it will know the difficulties involved, and this may have retarded the development of the subject. For many years agar was described as a galactan, i.e. a polysaccharide composed of anhydro-galactose units, but a careful study of the products of hydrolysis appeared to show the presence of only 34-40 per cent. of *d*-galactose. In 1935 it was decided to attempt to protect the free hydroxyl groups present in agar and examine the products of hydrolysis. Acetylation gave an agar acetate which yielded on removal of the acetyl groups with alkali a substance indistinguishable from agar in its gel-forming properties, showing that no degradation had occurred on acetylation. The acetyl residues were readily replaced by the more stable methyl residue, and the methylated agar was then subject to hydrolysis. The main product isolated turned out to be a new crystalline trimethyl galactose (55-60 per cent.), and it was shown to be 2:4:6-trimethyl galactose. This substance has recently been synthesised by a method leaving no doubt as to the structure assigned to it. In this portion of the agar molecule, *d*-galactopyranose units are linked by positions 1 and 3 and not by the usual 1:4 linkages observed in starch, glycogen and cellulose. At the time this 1:3-linkage was thought unique, but it has since been discovered in damson gum and in the galactogen of the edible snail *Helix Pomatia*. Owing to the negative rotations of agar derivatives, the glycosidic linkage appears to be β (as in cellulose). so that if for the moment we disregard the other components of the molecule, we can see that by reasons of geometry the structure can be either a closed ring of about six such units or a staggered zig-zag chain quite different from starch or cellulose, and this may have some bearing on the question of gel formation. Sugar residues apart from *d*-galactose are present, however, which must necessarily modify these structures. For many years an essential part of the agar molecule was thought to be a sulphuric ester grouping. It was surprising, therefore, that neither agar acetate (which on de-acetylation formed a gel with ease), methylated agar nor the washed agar used as a starting material contained sulphur, so that the claims of certain workers that the presence of this sulphuric ester residue was the reason for the swelling power seem to be discounted. By shaking crude agar with water a yield of about 90 per cent. of material has been obtained almost free from sulphur, and which formed a gel like the crude product whilst the remainder contained a relatively high proportion of sulphur (5 per cent.), but would not gelatinise. One other portion of the agar molecule has been identified, and the striking thing is that it is a derivative of *l*-galactose, so that this polysaccharide is one of the few which are, so to speak, ambidextrous, although this *l*-galactose derivative appears to occur only once to about four or five *d*-galactose units. In 1936, a hepta-acetyl *dl*-galactose derivative was isolated by the acetolysis of agar and it was claimed that galactose was present in the aldehydic, i.e. straight chain form in the molecule. This latter conclusion has been disputed, but the point about the presence of some derivative of *l*-galactose is not in doubt. By remethylating the residue obtained from the hydrolysis of methylated agar after removing the crystalline 2:4:6-trimethyl methylgalactoside, a crystalline body was obtained identified as 2:4-dimethyl 3:6-anhydro-β-methyl-*l*-galactoside. Unfortunately the jigsaw puzzle is not by any means complete yet; at least one piece remains for identification, and the final picture of the structure of agar may not be painted for many years, for even if the simple chemical molecular skeleton is known, then the physical molecule must take a long time to evaluate. Any structure proposed must account for the property of agar to form a gel. Gel formation is due to attempts by the molecule to dissolve, but owing to cross-linkages or forces of some kind between the chains this does not happen until a relatively high temperature is reached. When the true structure of the chemical molecule is worked out I am convinced that the peculiar properties of agar will find an explanation.

DISCUSSION

Mr. Dodds asked if Dr. Percival considered that the chemical constitution of agar had a lot to do with its clarifying and other properties, and also considered the parallel properties of isinglass.

Dr. Percival said that the unrecognised fragment did not contain any protein. Agar was sometimes called Bengal isinglass, and resembled it in many of its properties. The structure of isinglass must be one of those things with chains, presumably protein chains, which were linked together and cross-linked in some way.

Coming Events

This section is reserved for advance notices of meetings or other events. These should be received by Wednesday of the week before the meetings, etc., occur.

Monday, February 27

Harrow Branch, Pharmaceutical Society, Gayton Rooms, Station Road, Harrow, at 8.30 p.m. Mr. W. Deacon on "From Bloomsbury to Brunswick Square."

North Nottinghamshire Chemists' Association, Victoria Hotel, Mansfield, at 8.15 p.m. Annual meeting.

Tuesday, February 28

Cardiff Branch, Pharmaceutical Society, Park Hotel, Cardiff, at 8.30 p.m. Annual general meeting.

Liverpool Chemists' Association, Royal Institution, Colquitt Street, at 8.30 p.m. Dr. T. R. Roberton on "Spread of Infectious Diseases."

West Middlesex Chemists' Association, Palladium Cinema, Ealing Broadway, W.5, at 8.45 p.m. Members' night.

Parliamentary News

Income Tax on Scientific Research

Mr. S. F. Markham asked the Chancellor of the Exchequer, on February 21, whether he would consider the expediency of relieving money spent on scientific research in industry of the burden of income tax, by instituting a rebate on moneys so expended?

Sir John Simon: My hon. Friend would not be correct in assuming that in no circumstances would expenditure incurred by an industrial concern on research for the purposes of its business be admissible as a deduction in computing its profits for income tax purposes. If he has any particular case in mind, and will let me know the facts, I will gladly look into it and communicate to him the result of my inquiries.

Seychelles Cinnamon-Leaf Oil

Mr. David Adams asked the Secretary of State for the Colonies on February 15 what steps the Government was proposing to take to help the Seychelles cinnamon-leaf oil industry, in view of heavy undercutting by the American synthetic product?

Mr. Malcolm MacDonald: The marketing of cinnamon-leaf oil from the Seychelles is already closely controlled by Government, and in order to ensure that the oil is marketed in the most satisfactory manner a sole selling agency has been appointed. While the present price of cinnamon-leaf oil is low, there has so far been no difficulty in disposing of all supplies offered from Seychelles. . . . Steps have already been taken in the Seychelles to encourage development of other kinds of essential oils for the production of which the islands are suitable. A Government distillery for the production of these new oils has recently been approved and financial assistance from the Colonial Development Fund has been obtained for its erection.

B.P. Conference

The following is the programme for the seventy-sixth meeting of the British Pharmaceutical Conference to be held in Birmingham on July 17-21:—

Monday, July 17

5 p.m.	Branch secretaries' meeting—Grand Hotel.
8 p.m.	Civic reception—Council House.

Tuesday, July 18

10 a.m.	Opening session, followed by science sessions—Great Hall, University.
11.30 a.m.	Ladies' excursion.
1 p.m.	Luncheon—University.
2.30 p.m.	Science sessions.
2.30 p.m.	Branch representatives' meeting.
2.30 p.m.	Ladies' excursions—Visit to Cadbury's works, Bournville.
7.30 p.m.	Banquet—Grand Hotel.

Wednesday, July 19

9.30 a.m.	Branch representatives' meeting.
10 a.m.	Ladies' excursion—Warwick and Leamington Spa tour.
12.30 p.m.	Official photograph—University.
1 p.m.	Luncheon—University.
2.30 p.m.	Sports excursion.
3.30 p.m.	Garden party—Botanical Gardens, Edgbaston.
8 p.m.	University reception and dance—Bournbrook.

Thursday, July 20

10 a.m.	Science sessions.
1 p.m.	Luncheon—University.
2.30 p.m.	Science sessions.
4 p.m.	Closing session—Great Hall, University.
5 p.m.	Afternoon tea—University.
5.45 p.m.	Excursion—Stratford-on-Avon.
7 p.m.	Informal dinner—Stratford-on-Avon.
8 p.m.	Performance—Shakespeare Memorial Theatre.

Friday, July 21

9.30 a.m.	Whole-day excursion—Cotswold country.
9 p.m.	Dance—Grand Hotel.

Trade-Mark Applications

The figures in parentheses refer to the classes in which the marks are grouped. A list of classes and particulars as to registration are given in "The Chemist and Druggist Diary and Year-Book," 1939, p. 342.

(From "The Trade Marks Journal," February 1, 1939)

Schedule III

"Trins"; for pads for removing nail polish (48). By Allcock Manufacturing Co., 22 Hamilton Square, Birkenhead, Cheshire. 585,989.

"Kromayer Lamp"; for ultra-violet ray lamps and water-cooled quartz lamps (11). By Hanovia, Ltd., Bath Road, Cippenham, Bucks. B579,542.

Schedule IV

"Birm"; for water-purifying preparations (1). By Burgess Zeolite Co., Ltd., 72 Horseferry Road, London, S.W.1. 602,803.

"Victory"; for fertilisers (1). By Carr & Day & Martin, Ltd., The Blacking Factory, Brunswick Park Road, London, N.11. 603,538.

"Plus"; for shampoos (3). By John Knight, Ltd., The Royal Primrose Soap Works, London, E.16. 601,412.

"Tease"; for perfumery, etc. (3). By Cussons, Sons & Co., Ltd., Kersal Vale Works, Moor Lane, Kersal, Manchester. 601,985.

"Syntestrin"; for medicated substances made from or containing hormones (5), By Gedeon Richter (Great Britain), Ltd., 14 Weedington Road, London, N.W.5. 601,884.

"Pia-Mothine" in facsimile writing; for moth-destroying preparations (5). By Henry Geo. Rogers, 2 Chalkhill Road, Wemhley Park, Middlesex. 601,783.

"Berin"; for medicinal tablets and ampoules of vitamin B (5). By Glaxo Laboratories, Ltd., Greenford, Middlesex. 601,783.

"Onostroyn"; for germicides, etc. (5). By Albert J. Sherwood, 106 Willow Street, Romford, Essex. 602,377.

"Pankura"; for pharmaceutical preparations (5). By Pan-Kura Products, Ltd., 45 Bedford Row, London, W.C.1. B602,527.

"Enwent"; for insecticides, etc. (5). By Edwards & Bent, Ltd., Badgers Hill, Sheriffs Leuch, Evesham. 602,540.

"Nicamine"; for diethylamide of nicotinic acid (5). By The Wellcome Foundation, Ltd., 67 Holborn Viaduct, London, E.C.1. 602,973.

"Chessies"; for medicated sweets (5). By David Gold, 113 Park Avenue, London, N.W.10. 603,543.

"Botol"; for codeine and bromoform tablets for coughs (5). By Henry Bottu, 115 Rue Notre-Dame-des-Champs, Paris 6-eme, France. 603,001.

Label design of cat and globe; for disinfectants (5). By Henry Waugh & Co., Ltd., 1 Pepys Street, Seething Lane, London, E.C.3. 603,201.

"Cadet"; for shaving and tooth brushes, etc. (21). By T. W. Culmer & Sons, Ltd., Culmak Works, Vale Road, London, N.4. 603,207.

"Flo"; for instruments for cleaning and polishing the nails (21). By Allcock Manufacturing Co., 22 Hamilton Square, Birkenhead, Cheshire. 601,929.

(From "The Trade Marks Journal," February 8, 1939)

Schedule III

Device of woman's figure and serpent with name H. Niemojewski; for a medicine (3). By H. Niemojewski, Nowy Swiat No. 5, Warsaw, Poland. 585,404.

"Radonax" and "Radonola"; for medicinal chemicals containing radon (3). By Société des Procédés Klinghoffer, 10 Avenue de l'Arsenal, Luxembourg. 586,979/80. (Associated.)

"Daggett & Ramsdell"; for toilet articles (48). By Stemco, Ltd., 128 Albert Street, London, N.W.1. 581,618. (Associated)

Schedule IV

"Sorciere"; for cosmetics and perfumes (3). By Jeanne Guilleaumaud, 27 Rue d'Italie, Nice, France. 601,562.

"Suz"; for shampoos (3). By Aloxo, Ltd., Elstree Way, Boreham Wood, Elstree, Herts. 602,146.

"Twinlink"; for essential oils (3). By Cumming, Parsons, Ltd., St. Mary Street, Queen's Road, Manchester, 9. 602,932., (Associated.)

"Rada-Pak"; for beautifying preparations (3). By Kathleen E. Clarke, 15 Eastcheap, London, E.C.3. 603,268.

"Capsitexa"; for medicated wool (5). By Walfox, Ltd., Clerk Green Street, Batley, Yorks. 601,145.

"Astrem"; for medicated inhalants for asthma, etc. (5). By Heinz Silten, 14 Weedington Road, London, N.W.5. 601,780.

"Eiraphyl"; for massage creams (5). By James Hilton Rogers, 83 Plymouth Road, Penarth, Glam. 602,020.

"Lirimin"; for internal medicines (5). By Sharp & Dohme, Ltd., 76 City Road, London, E.C.1. 602,321.

"Juvinerm"; for medicated preparations for the skin (5). By Ellentee, Ltd., 158 Oxford Street, London, W.1. 602,603. (Associated.)

"Tyro-Lol"; for germicides (5). By Potter & Clarke, Ltd., 60 Artillery Lane, London, E.1. 602,854.

"Damicol"; for pharmaceutical preparations, etc. (5). By Roussel Laboratories, Ltd., 1 Finsbury Square, London, E.C.2. 603,005.

"Azoman"; for pharmaceutical preparations (5). By C. H. Boehringer Sohn, Bingerstrasse 173, Nieder-Ingleheim A. Rhein, Germany. 603,235.

"Excelsior"; for pharmaceutical preparations, etc. (5). By John Richardson & Co., Leicester, Ltd., 62 Evington Valley Road, Leicester. 603,284. (Associated.)

"Eczelab"; for veterinary preparations (5). By Laboratoire D'Isothérapie Appliquée, 135 Avenue de Neuilly, Neuilly-sur-Seine, France. 603,323. (Associated.)

"Ovendosyn"; for pharmaceutical substances, etc. (5). By Menley & James, Ltd., 64 Hatton Garden, London, E.C.1. 603,579.

"Cæsar Clean-Sweep" with head of Cæsar (words 'Clean-sweep' disclaimed); for shaving instruments (8). By A. & H. Bassat (London), Ltd., 52 Rosebery Avenue, London, E.C.1. 603,108. (Associated.)

Trade Notes

TRADE MARKS.—Frank Blakey, trade mark consultant, may be addressed at 148-150 Holborn, London, E.C.1.

SITES AND SERVICES AT HULL are claimed to be cheaper than at other ports. Information may be obtained from the Town Clerk.

NAIL ENAMEL.—Revlon, described as fashion's smartest nail enamel, is obtainable from Calmon & Neate, Ltd., 8 Gerrard Street, London, W.1.

LILLY'S NEW HEADQUARTERS.—Eli Lilly & Co., Ltd., announce in this issue the address at Basingstoke of their new head office and laboratories, to which all communications should be sent after March 4.

BOTTLE-CLEANING MACHINES.—D. G. Binnington & Co., Ltd., Kingston Machine Works, Regent Street, Hull, advertise in this issue bottle-cleaning machines and offer their latest catalogue on request.

BUSINESSES FOR SALE.—Orridge & Co., 56 Ludgate Hill, London, E.C.4, announce in our advertisement columns that in January this year they sold more businesses than in any one month since they were established in 1846. Full details may be obtained on application.

HOSCONIN TABLETS are advertised in this issue for the relief of neuralgia, colds, flu, headache and rheumatism. They are packed in tubes of twenty tablets, and may be obtained from the usual wholesalers. These tablets are made by Ulvir, Ltd., 18-20 Brewery Road, London, N.7.

EVERFAST NAIL BRUSH.—Advertised in this issue is the Everfast nail brush, which is new in design and practical in use. As will be seen from the illustration, the handle can be firmly grasped in the hand. This brush is produced by Addis of Hertford for Catalin, Ltd., Waltham Abbey, Essex.

CALSIMIL FOR CHILBLAINS.—New show material for Calsimil is available for window and counter displays. Calsimil is issued in the form of tablets in bottles of 60, 500 and 1,000, with special display terms, and is made by The British Drug Houses, Ltd., Graham Street, City Road, London, N.1.

PHARMACEUTICAL MACHINERY.—S. W. Wilkinson & Co., Western Road, Leicester, advertise their tablet machines of rotary and single punch types elsewhere in this issue. In addition, granulating machines and gelatin capsule machinery are obtainable, full details of which are sent on request.

NEW ENSIGN CAMERA.—Another new camera, described as the pocket E20, No. 2, has been introduced by Ensign, Ltd., 88-89 High Holborn, London, W.C.1. It is a folding camera and retains the features of the cheaper variety, but is designed for the amateur who wishes a superior model. This new camera takes eight pictures, size 2¼ by 3¼, on E20 film.

FEETEES.—A new advertising campaign for Feetees has been launched by Carmac Laboratories (1938), Ltd., Hampton, Middlesex. Feetees is the name applied to a non-greasy foot cream which, as the name implies, is intended to promote foot fitness. Further information is given elsewhere in this issue, and full trade details may be obtained on application.

DISTRIBUTION APPOINTMENT.—Splendor, Ltd., 5 Beastmarket Hill, Nottingham, have taken over the sole distribution for Great Britain and Eire of Covermark and Spotstik.—Juvetex, also distributed by Splendor, Ltd., is advertised in this issue as a specific for skin affections. Trade terms and display material may be obtained on application. A coupon appears in our advertisement pages.

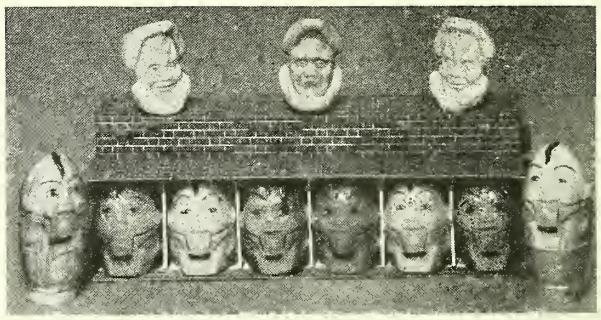
LEIPZIG SPRING FAIR.—The Leipzig Industries Fair, which opens for general samples of goods on March 5 and continues to March 10, will contain a section for drugs, pharmaceutical products and toilet preparations, photographic, optical and cinematographic equipment. Full details may be obtained from the London office of the Leipzig Fair, First Avenue House, 45 High Holborn, London, W.C.1.

AROMAIR DEODORISER.—Odosan, Ltd., 34 Aldermanbury, London, E.C.2, offer the Aromair deodoriser in a range of several colours and in five perfumes which disguise the disinfectant odour, ensuring a pleasant atmosphere at all times. Two offers are available: container complete with deodorant or a container free with purchase of four refills. The advantages of this deodoriser are detailed in our advertisement pages.

WANIE BLADES.—London & Provincial Factors, Ltd., 146 Theobalds Road, London, W.C.1, sole distributors of Wanie products, have announced to dealers and wholesalers the bonus offer appearing in our advertisement pages. During March a generous bonus offer is made to all traders handling Wanie blades, and chemists are invited to co-operate by displaying prominently the blades in the shop and in the windows. Attractive display material is available.

MR. H. JACCAZ, 27 Thicket Road, London, S.E.20, is British agent for Parfumerie Lesquendieu, of Paris, and all orders and inquiries for the products of this house should be sent to him.

EASTER NOVELTIES.—Illustrated on this page are some of the interesting and attractive Easter soap novelties made by the Vinolia Co., Ltd., Bebington, Wirral, Cheshire. The illustration shows the Humpty-Dumpty soap shape superimposed in new style egg cup which is packed in boxes of twelve, and the



centrepiece shows six Humpty-Dumpty models in brick wall gift box. This pack is also available in plain boxes of thirty-six. The figures superimposed on the brick wall are an ingenious two-faced novelty described as up-and-down pack in boxes of twelve with a display unit to hold three.

HYPODERMIC SYRINGES.—The General Surgical Co., Ltd., Gensurco House, Rosebery Avenue, London, advertise Record Fivepoint syringes for hypodermic and surgical use. Wholesale and export offers only are made, and particulars may be obtained from the manufacturers.

CHEMISTS' LIBRARY.—Scott's Libraries, Ltd., 42 Newgate Street, London, E.C.1, offer pharmacists a means of inaugurating a library in their pharmacies. The proposition offered by Messrs. Scott is an interesting one, everything necessary being supplied by the wholesaler. That is to say, besides the stock, there are also supplied advertising material, leaflets, posters, coloured book jackets, showcards, record cards and a cabinet. Further details are obtainable elsewhere in this issue.

AN ATTRACTIVE GIFT SCHEME.—Johnson & Johnson (Gt. Britain), Ltd., Slough, Bucks, announce in this issue a gift scheme whereby purchasers of their baby powder, soap and cream may obtain free a true-to-life model of the giant panda which has been much in the news of late as an interesting inhabitant of the London Zoological Gardens. A specimen of this toy panda for the window will be supplied with every order of more than three dozen tins of Johnson's baby powder. Full details as to how the gift may be obtained appear in our advertisement pages. The offer closes on August 31.

EARLY ADVERTISING.—In our advertisement pages appears the copy taken from an advertisement in a Maw catalogue published in 1860. The advertisement carries the photograph of George Maw, founder of the firm in 1807, and in its foreword directs attention to a matter which still troubles manufacturers of quality goods to this day. The policy of Maw remains as in its earliest days, when they sold only worthwhile products. A proud record of 132 years of successful trading in chemists' sundries is held by the company, S. Maw, Son & Sons, Ltd., 7-12 Aldersgate Street, London, E.C.1.

Births

Notices for insertion in this column must be properly authenticated.

JONES.—At The Pharmacy, 16 Cross Lane, Bebington, Cheshire, on February 18, Elvery, the wife of Oswald Jones, M.P.S., of a daughter.

Marriages

KING—AITKEN.—At the Bath Hotel, Glasgow, on February 4, Eric F. King, to Sarah M. Aitken, M.P.S.

Deaths

BODGER.—Recently, Mr. John William Bodger, chemist and druggist, aged eighty-three. Mr. Bodger was for many years in business in Cowgate, Peterborough. He also opened businesses at Hunstanton, Snettisham and Heacham. He served as treasurer of the Peterborough and District Association of Pharmacists for many years, and had acted in a similar capacity for the East Anglian Federation of Pharmacists. He had occupied the presidential chair of both bodies.

COLLINS.—Suddenly, at his office in Hollis Street, London, W.1, on February 14, Mr. W. Collins, 30 Baring Road, Addiscombe, Croydon, aged fifty-seven. Mr. Collins was formerly the London and Southern counties representative for Arthur Berton, Ltd., surgical dressing manufacturers, Old Street, London, and for the last ten years the London manager of Thomas Glover & Sons, Ltd., elastic hosiery manufacturers, Corlton, Nottingham.

DAVIE.—At Dundee, on February 19, Mr. George Myles Davie, M.P.S. Mr. Davie, who qualified in 1901, had carried on business at 236 Hilltown for about thirty-five years.

FORD.—At Blenheim House, Weighton Road, London, S.E.20, on February 16, Mr. T. H. Ford, founder of T. H. Ford, Ltd., surgical dressings manufacturers. The business was started in Well Street, London, E.C.1, in 1919, and later transferred to its present site at Falcon Square, E.C.1.

FRANCIS.—Recently, Mr. Thomas Hamer Hanbury Francis, M.P.S., Charminster Road, Bournemouth. Mr. Francis passed the Minor examination in 1901.

GEAKE.—At 7 Osborne Place, Dundee, recently, Mr. Henry Geake, retired chemist and druggist, Dundee. Mr. Geake passed the Minor examination in 1903.

JACKSON.—At Bridlington, on February 14, Mr. William James Jackson, a director since its inception of William Hay, Ltd., manufacturing chemists, Hull and London, aged eighty-one.

PARKINSON.—On February 17, Mr. Frank Ernest Parkinson, aged seventy-nine. Mr. Parkinson was the youngest and last member of the family of Mr. Richard Parkinson, the founder of Parkinsons, Ltd., Burnley, with which business he had been connected all his life, having acted for many years as a departmental manager.

ROBINSON.—At 14 Ravine Road, Bournemouth, on February 12, Mr. John Lawrence Robinson, chemist and druggist, aged sixty-five. Mr. Robinson was at one time in business in Boscombe, but retired some years ago.

ROWELL.—Recently, Mr. Thomas Bell Rowell, M.P.S., Hadrian Road, Newcastle-on-Tyne. Mr. Rowell passed the Minor examination in 1895.

SALTER.—On February 12, Mr. Leonard Eli Salter, M.P.S., 43 Lancaster Avenue, West Norwood, London, S.E.27. Mr. Salter had taken his morning bath as usual and was subsequently discovered lying in the bath with his head partly submerged.

STEVENS.—At 63 Carlton Avenue, Gillingham, Kent, on February 13, Mr. James Stevens, chemist and druggist, aged eighty-eight. Mr. Stevens established himself in business at 18 High Street, Gillingham, after serving his apprenticeship with his uncle, Mr. George Stevens, chemist, High Street, Strood, and remained there for over fifty years until his retirement about seventeen years ago.

THORN.—At 39 Beechwood, Sauchie, Alloa, on February 14, Mr. Robert Thorn, M.P.S., aged forty-six.

WADDELL.—Recently, Mr. Robert Arthur Waddell, M.P.S., Alston, Cumberland. Mr. Waddell passed the Pharmaceutical Society's Minor examination in 1902.

WHEELER.—At Belfast, on February 14, Mr. Frederick Wheeler, J.P. (Wheeler & Co., mineral water manufacturers, Cromac Street), aged seventy-six.

WILLIAMS.—Recently, Mr. William Rees Williams, Ph.C., Tylorstown, Glam., aged seventy-three.

Personalities

MR. O. L. CARRINGTON, M.P.S., Chipping Norton, has been elected president of the local social club.

MR. SYDNEY H. VEALE, M.P.S., has been granted permission to practise as a chemist and druggist in Jersey.

MR. E. C. FOSTER, M.P.S., Keighley, gave an address on "My Job," to the local Rotary Club recently.

MR. A. C. YEATES, M.P.S., Stourbridge, has been appointed a member of the executive committee of the local chamber of trade.

ALDERMAN PERCY KNOTT, J.P., M.P.S., Bolton, is relinquishing the post as sub-postmaster which he has held for over fifty years.

MR. LEONARD H. TAYLOR, M.P.S., St. Annes-on-the-Sea, gave an address on "My Job" to the local Rotary Club recently.

MR. A. G. WRENCH, M.P.S., Croydon, has been chosen to represent England in the international indoor bowling match on February 25.

MR. O. J. BARLEY, M.P.S., 19 Cornmarket, Thame, has been elected vice-president of the local division of the St. John Ambulance Brigade.

MR. A. E. FOOTITT, M.P.S., has been appointed chief pharmacist at the Royal Northern Hospital, London, N., in succession to Mr. Herbert Skinner, Ph.C., who will shortly be retiring.

MR. T. R. PERKINS, M.P.S., Henley-in-Arden, is the author of an article "My Red-letter Day," which appears in the February and March issues of the "Railway Magazine."

MR. H. NOEL THOMAS, M.P.S., Aberdare, secretary of the Aberdare and Merthyr Local Branch of the Pharmaceutical Society, has been elected president of the local chamber of trade.

MR. A. MCDONALD was recently presented with a cocktail cabinet from the staff of C. R. Harker, Stagg & Morgan, Ltd., manufacturing chemists, London, E.1, on his resignation after twenty-three years' service to join the board of Gale, Baiss & Co., Ltd., manufacturing chemists, London, S.E.15.

MR. J. C. BLOOMFIELD, 147 Newcome Road, Portsmouth (a pharmacy student attached to the Portsmouth Municipal College pharmacy department) had been awarded the silver medal offered annually by the Pharmaceutical Society for the best herbarium collected in the British Isles. The medal is only awarded when the collection possesses sufficient merit. The plant specimens in Mr. Bloomfield's herbarium were collected during the last three years in the country districts around Portsmouth. This is the first time a Portsmouth student has gained the distinction.

MR. HAYDN PARRY, Nelson, Glamorganshire, who has been appointed president of the Aberdare and Merthyr Branch of the Pharmaceutical Society (*C. & D.*, February 18, p. 173), is a native of Merthyr. He was apprenticed with his uncle, the late Mr. Tom Jenkins, who was in business in Merthyr for over fifty years. Before commencing business at Nelson on his own account in 1927, Mr. Parry studied at the Cardiff Technical College and gained experience in the Midlands and at Cardiff. He is active in the business and social life of Nelson and was for many years a prominent member of the local chamber of trade. He is a member of the executive committee of the Nelson Welfare Association, and was one of the founders of the Nelson Lodge of the Loyal Order of Moose.

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Information Department

S/23 Lactocreosote
S/22 Linocol lotion
E/22 Nu-Enamel for the nails
B/22 Phosoforme
B/41 Seal products (address)
M/23 Shayler's hair dye
E/22 Silpur for rheumatism
B/22 Stronglite vibrators

THE
CHEMIST AND DRUGGIST
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Co-operative Bazaars

A PROPOSAL made originally at the Birmingham co-operative conference in July was to the effect that a chain of co-operative bazaar stores be opened in competition with the present limited and unlimited price bazaars which appear to constitute a serious menace to retail distribution as it is conducted in this country. An early experiment has been made by the Woolwich Co-operative Society, and it is understood that shareholders of the Wholesale Co-operative Society have now decided to ask their directors to investigate the possibilities of entering seriously into bazaar competition. If it is agreed to proceed with the plan, it may be taken for granted that sales will not be limited to sixpence, as they are in one chain store of the type to be followed, but to the system of another group of similar stores where the range of prices is much wider. This form of trading is one which is bound to cause serious thought to retail traders in this country, particularly pharmacists, who find that many of the goods normally sold by them appear on the counters of these stores. In addition, this form of trading is obviously a serious rival to the individual shopkeeper who already has to meet severe competition from the multiple drug stores as well. Many manufacturers seek the bazaar business for two reasons; one being that payment is made practically at once, and the other that orders are very large.

The effect of the co-operative societies running bazaars however, should not be felt to the same degree by retailers and multiple chemists as by the bazaar companies against whom this particular type of selling is directed. The cosmetic trade of the chemist is obviously selected by these bazaars, for it is possible to obtain supplies which offer satisfactory rates of profit, especially in the large quantities in which they are able to buy. When the question of medicaments comes up for consideration, however, there can be little change in this direction, unless the co-operative societies are strong enough to obtain a revision in the present requirements of the law, so far as the presence of a pharmacist on premises where drugs are sold is concerned. Manufacturers, distributors and vendors of proprietary medicines will no doubt be looking anxiously towards the coming Budget, when it is expected that some change in the present law relating to proprietary medicines may be made. It will be recalled that when the inquiry in regard to patent medicines was being held, the arguments in favour of Woolworth's being allowed to sell certain medicaments were forcefully presented, and it is to be hoped that the authorities are prepared to contest any attempt to alter the present position in regard to the sale of medicines. With regard to the restricted price bazaars, competition in medicaments is perhaps less likely to be severe than in the case of co-operative bazaar stores, in which products of higher value may be obtained.

That restricted price stores can be more favourably treated than the private chemist is the subject of a sheet circulated by Messrs. Berry and Craven, of Sheffield, who in this circular ask for a "square deal for pharmacy." The prices quoted are those of a firm manufacturing cosmetic products to the private chemist and to a restricted-price bazaar. The quotations are naturally much in favour of the bazaar company for the very good reason, no doubt, that the company pays cash and orders large quantities, distributing the goods among the various branches, whereas the chemist orders a small quantity and separate distribution must be made in each case.

The question which actually arises is : does the pharmacist really want to compete with threepenny or sixpenny articles? His market is surely on a higher level if pharmacy is to be worth while. Many of the products in regular demand, and let it be added consistently advertised by the manufacturers, cannot be sold by restricted price stores. So far as the higher-priced articles are concerned, if they are protected, the chemist has nothing to fear in competition, since the price is the same wherever the products are purchased. If the bazaar method of retail trading continues to grow, it will mark a change in the purchasing habits of the public and one which will not easily be made without drastic reorganisation of ideas regarding retail distribution generally.

Export Trade Problems

IN his speech at the British Industries Fair Banquet, held at the Mansion House, London, on Monday evening last, the Rt. Hon. Oliver F. G. Stanley (President of the Board of Trade), when referring to the problems of export trade, stressed two points. He said: "No individual exporter, however, can fight successfully for markets against a whole nation, and recent developments in trading methods have meant, in effect, that the whole weight of some nations is brought to bear in pushing sales of their goods in certain markets. We cannot stand idly by and see our markets lost." Everyone engaged in the sale of our manufactures, at home as well as overseas, is well aware of the position, and, as things are, it has frankly to be admitted there is no answer to competition from goods nationally subsidised. Such a policy, as Mr. Oliver stated, "can only lead to the impoverishment of the supplier." Trading on such a basis is, of course, thoroughly uneconomic, and those who are at the moment promoting it must realise that fact. We believe it may be looked upon as a temporary measure of expediency. Should, however, it become a settled and permanent practice, it would have to be challenged by the adoption of similar measures of trading by this country. We should not emerge unscathed from such a contest of

economic strength, and it would certainly result in the still further contraction of world exchange of goods, for all countries would be forced to again increase the severity of the various methods now in operation of protecting their domestic industries.

The position makes the coming discussions between trade representatives of Germany and this country, to which the speaker referred, of the utmost importance. These talks and personal contact should lead to a better understanding by both sides of each other's views and difficulties, and we believe agreements which will allow both countries to seek for trade in the world's markets on friendly and fair terms will be reached. Such an achievement would give a much-wanted fillip to trade, and its beneficial reactions in the sphere of international politics would be inestimable.

The second point made by the President of the Board of Trade referred to our increasing adverse trade balance. He said . . . "we can only continue if and so long as nations, who make the fullest use of the access we afford to our markets, spare no effort in return to increase their purchases of British goods." We do not know what countries Mr. Oliver Stanley had in mind when making this reference, as he termed it, to "one-way streets," but the figures in the next column of total imports from, and exports to, some of the Empire countries, compiled by his department, appear to place them in this category.

During the past two years, we purchased goods from these countries to the value of £540,388,000, while the value of our shipments to them totalled only £248,623,000, showing a trade debit balance for two years of £291,765,000. It is definitely our desire to provide a free market for Empire produce, and to encourage the sale of their goods in this country, but it will be quite impossible for us to continue to do so unless a much greater freedom is provided by the Empire countries for the sale of our goods in their markets. Of the total Empire exports we take between 60 and 65 per cent., while our shipments only represent about 35 to 40 per cent. of their total imports. Whether produced or manufactured goods, the bulk of our imports of Empire origin are competitive with home-produced goods, but they are allowed in free of duty, with minor exceptions. Any of our goods which are at all competitive with Empire country products are scheduled for a duty which in general prevents their entry. The normal practice is that only British goods of classes not made in Empire countries are allowed free entry. Here is

	U.K. Imports from		U.K. Exports and Re-exports to	
	1937	1938	1937	1938
	£'000	£'000	£'000	£'000
Canada	88,847	78,564	28,809	23,570
Newfoundland	3,198	2,592	1,244	983
Australia	77,732	72,120	38,374	38,956
New Zealand	49,884	46,814	20,552	19,531
British India and Burma	64,693	55,944	39,621	36,983
	284,354	256,034	128,600	120,023

a recent instance. British-made vanillin used to be a free import into Australia. Recently, because the manufacture of this product is to be commenced in Australia, an import duty is now inflicted on our goods at the rate of 25 per cent. *ad valorem*, plus 5 per cent. primage tax. Canada shipped to this country chemicals to the value of £586,897 in 1938; they were competitive products, but were allowed in free of import duty. Had we desired to ship similar products to Canada, they would have been liable to duties which on average would have been about 20 per cent. *ad valorem*. Such conditions are totally inequitable.

Pharmaceutical Society of Northern Ireland

Council Meeting

ALLEGATIONS of trade filching against grocers and itinerant traders are to be investigated by the Law Committee of the Pharmaceutical Society of Northern Ireland. This decision was made at the monthly meeting of the Council held at 73 University Street, Belfast, on February 17, the president (Mr. Walter C. Tate) in the chair. Also present were Mr. J. Glendinning (vice-president), Sir Thomas McMullan, Professor J. Small, Professor E. B. C. Mayrs, Dr. S. E. A. Acheson, and Messrs. C. Abernethy, J. E. Connor, J.P., S. H. Forrest, J. W. Gray, J.P., H. F. Moore, J. McDowell, J. McGregor, J. T. Nicholl, I. W. Parker, S. Gibson, J.P., J. F. Grimes, J.P., and Wm. Martin. The secretary (Mr. D. L. Kirkpatrick) was in attendance.

The matter was raised by MR. GLENDINNING, who drew attention to a circular recently issued by a grocer, "Don't go to your chemist for anything. I can supply all you want." That, he said, was only one instance of the merciless competition with which the chemist had to contend nowadays, and every day it was getting worse. Grocers and other such traders who had never had an hour of specialist training were taking more and more lines out of the chemist's hands, and unless something drastic was done without delay the chemist was going to find himself in a serious economic position. In certain countries on the Continent nothing pharmaceutical was allowed to be sold other than in a chemist's shop, and there was an admirable system for regulating the number of such shops. He thought it was time that they had a similar measure of protection. Chemists paid three guineas presumably for their protection under the Dangerous Drugs Act, but what they made and sold under that Act would not pay an apprentice for twelve months. An apprentice had to serve a long and arduous apprenticeship and sit for difficult examinations, but if he started as a grocer he would be on precisely the same plane as a fully fledged chemist except that he would not be able to sell dangerous drugs.

PROFESSOR SMALL inquired if the circular Mr. Glendinning had complained of had been sent to the Home Office.

MR. GLENDINNING said he would make it his business to forward a copy.

MR. CONNOR said he wished to endorse all that Mr. Glendinning had said. If something was not done without delay they would find a new type of trader spring up—a man who sold drugs quite apart from the pharmaceutical chemist. Unless they got some measure of protection from the Government he feared that ultimately they would have to branch into such lines as tobacco in order to get a bare living. It was impossible to get a living under the Dangerous Drugs Act as it at present stood. Chemists, particularly in the country, were also suffering because of the direct trading of wholesalers with farmers. As a result of the practice of these firms in sending their agents all over the place to deal directly with the farmer chemists had lost a big slice of the trade they had formerly done in sheep-dips.

THE PRESIDENT: Do you want a new Act?

MR. CONNOR: It may be necessary. We should point these things out to the Home Office and if they think it necessary then have a new Act by all means.

THE PRESIDENT: Would you like an Act on the lines of the English Act?

MR. CONNOR: That is what we want to avoid.

THE SECRETARY: That is what you are going to get.

MR. CONNOR said that in Northern Ireland they should have more control over the licentiates.

MR. GLENDINNING said it was about time they had a few friends in Parliament to speak for them. They should have their grievances voiced in both Houses.

SIR THOMAS MCMULLAN said they had fought out the sheep-dip question with the Home Office eight or ten years ago, and got no sympathy.

THE SECRETARY said that the Act of Parliament was wrong.

MR. GRAY said iodine solution, etc., was being sold all over the place at fantastic prices by young men tearing round the country in cars. How on earth could a chemist compete with that kind of thing, and yet he was paying heavy rents, rates and taxes.

DR. ACHESON pointed out that chemists did not by any means confine themselves to pharmaceutical lines. Some of them sold cameras and perfumes.

MR. GLENDINNING: How could we live otherwise?

MR. GIBSON proposed that the whole matter should be referred to the Law Committee for a report to the next Council meeting, and they could then make up their minds as to whether or not they should send a deputation to the Home Office. (Hear, hear.)

MR. CONNOR seconded and the motion was unanimously adopted.

EQUIPMENT FOR A TECHNICAL SCHOOL

A letter was read from Mr. D. Hanna, principal of Enniskillen Technical School, enclosing a list of equipment urgently required for the classes in physics for pharmaceutical apprentices, and asking the Council to consider the making of a grant towards expenditure amounting to £17 5s. 3d.

MR. CONNOR said that he was not against giving financial assistance to their country students, but he thought they should not make a grant to one technical school unless they were prepared to do it all round.

THE PRESIDENT said that was the point. If they started with one where were they going to stop?

MR. PARKER thought the Society should do something in the matter. They were a poor community in County Fermanagh; there were only six or eight students attending the classes and the technical subcommittee said that if the Council could not help them they would have to give up the physics class altogether. He did not think the Committee wanted a grant of the full amount.

THE PRESIDENT asked if there would be any chance of the Council receiving another application for the teacher's expenses as last year.

MR. PARKER said if the Council allowed the usual grant the Committee would be satisfied.

MR. FORREST thought it was hardly fair that the Society should have to finance technical education, and suggested that the Council should get in touch with the Secretary of the County Council and try to have pharmacy classes officially recognised and financed.

MR. GLENDINNING disagreed with Mr. Forrest, saying that those students were their own people, and it was up to the Council to help them in every way they could.

SIR THOMAS MCMULLAN said the Society had now a considerable capital; their income was greater than their expenditure, and he thought they could be very generous in encouraging pharmacy classes in Ulster.

MR. CONNOR said that would be quite satisfactory if the money was applied to the benefit of their own students, but if it went to technical schools it would be applied to all chemistry students.

MR. FORREST said he did not see why the Pharmaceutical Society should be so generous, and should place itself at the beck and call of local bodies. The education rate which was struck in the various counties should suffice to cover the cost of pharmacy students. No matter how much they might like to help, the Council had to admit that the principle was wrong.

PROFESSOR SMALL said he thought this argument was wrong because those classes were specifically mentioned in the Society's syllabus and were not so in the ordinary technical school syllabus. In his opinion the request of the Fermanagh people was perfectly reasonable.

THE PRESIDENT said the trouble was the shortage of numbers attending the classes.

MR. PARKER said the president had put his finger on it. The equipment was not required for other classes.

MR. NICHOLL said he was in agreement in principle with assisting the young people, but he would like some idea of the expenditure involved. In the next few years it was possible that they might have to touch biology, and that meant a very high expenditure in the way of microscopes.

MR. MOORE said that speaking as treasurer of the Society he was in agreement with Sir Thomas McMullan. They were very well off at the moment, and could well afford to give the help that was asked of them. He did not think they would be establishing a bad precedent.

THE PRESIDENT said they had given £14 to Fermanagh in the last two years—£7 in 1937 and £7 in 1938.

SIR THOMAS MCMULLAN suggested that the Council should make a grant of £10 to Enniskillen Technical School, and leave them to make up the balance themselves.

THE SECRETARY said he had suggested to the principal that he should charge the students four guineas—double the fee—in order to get over the financial difficulty.

MR. PARKER said that would not be practicable. They had trouble enough getting two guineas. He gave notice of motion for a grant of £10 to Enniskillen Technical School.

MR. CONNOR suggested that the secretary should write to the authorities and put Mr. Forrest's suggestion before them.

OTHER MATTERS

THE SECRETARY read a letter from the Ministry of Home Affairs approving the appointment of the examiners for the 1939 examinations.

THE PRESIDENT referred to the success of the lecture given under the auspices of the Society by Dr. Stanley White, of Parke, Davis & Co., London, and said the attendance of 201 was a record for a pharmaceutical meeting. He moved that the thanks of the Council be forwarded to Dr. White and Messrs. Parke, Davis.

MR. GLENDINNING seconded.

In reply to MR. NICHOLL, THE PRESIDENT said the next lecture was expected to be held in April.

MR. MOORE reported on the arrangements for the Society's dinner, whist drive and dance and said that it promised to be a memorable affair. The members of the trade were responding splendidly, and he expected a record attendance.

On the motion of MR. GRAY, seconded by MR. FORREST, the following were elected members of the Society:—Charles Henry Bell, 2 Lucerne Parade, Belfast; Samuel Henry Fleming, 97 Charlotte Street, London, W.1; Thomas Little, c/o Adamson & Co., Darling Street, Enniskillen; James Patrick Millar, 26 Crumlin Road, Belfast; John Joseph Ward, Killybrackey, Dungannon; Miss Hannah Isobel Whiteman, 18 Bryansburn Road, Bangor.

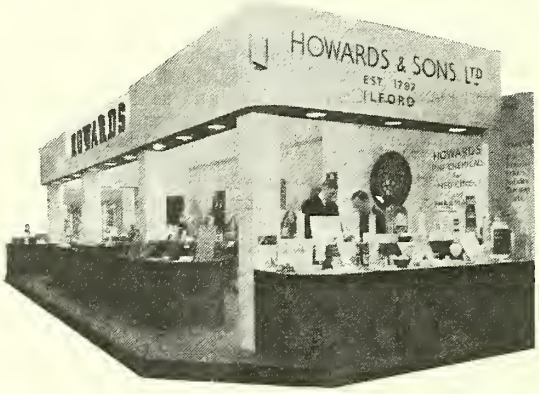
The Secretary intimated that the next meeting of the Council fell on March 17, but as that date happened to be a holiday it had been suggested that it could be held on the afternoon of March 16, thus coinciding with the dinner in the evening.

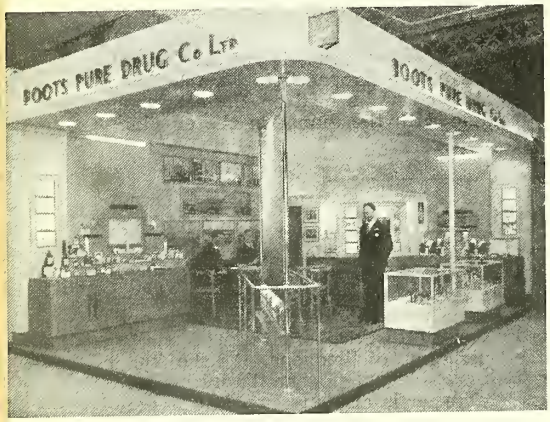
This was approved.

Oil of Caraway

SANDERMANN ("*Journal Praktische Chemie*," 151, 160) gives an account of the formation of caraway oil in the plant. The oil appears to be formed in the plant a considerable time before the harvest, and the carvone content does not undergo any substantial alteration. The oil distilled from the flowering plant contains about 25 per cent. of limonene. As the fruits form, and are in the green stage, the limonene diminishes and the carvone increases. Cadinene is also present, but is only found in the oil distilled from the stems, not in the fruit oil. Carvones are produced in the plant from limonene, with the probable intermediate formation of carveol. The fact that dihydrocarveol and dihydrocarvone are present in caraway oil indicates that reduction as well as oxidation takes place in the life processes of the plant. The author states that a crystalline open chain hydrocarbon is present in caraway oil. It is interesting to note that exactly the reverse is happening in caraway plants of that which happens in orange plants. The composition of orange flower oil is well known, and some years ago Parry showed that in the oil of the immature fruits (*orange peas*) the terpenes had much increased and the oxygenated constituents much diminished.

BRITISH INDUSTRIES FAIR



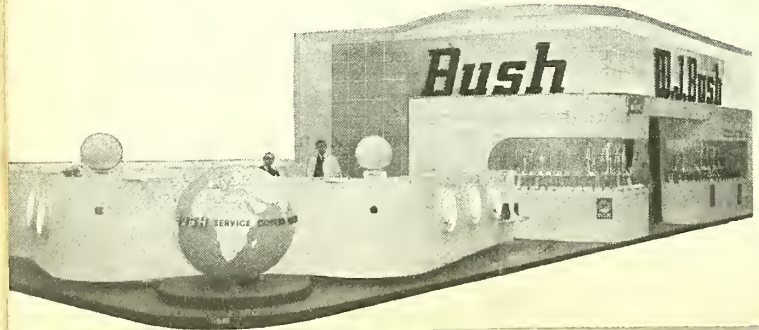


Monsanto Chemicals, Ltd.

Howards & Sons, Ltd.

Boots Pure Drug Co., Ltd.

W. J. Bush & Co., Ltd.



THE British Industries Fair, 1939, opened on a note of confidence. This was to be seen in the attitude of the exhibitors and it was the theme for Lord Derby in his address as guest of honour at the Press luncheon at Earls Court on opening day. The world was suffering, he said, from a want of confidence, and anything that could be done, individually or collectively, to restore confidence was for the good of the country and of the whole world. He expressed the view that a time of peace and prosperity was closer than many imagined. Mr. R. S. Hudson, M.P. (Secretary to the Department of Overseas Trade), who presided at the luncheon, claimed that the Fair was making an important contribution to the country's drive for export trade with the object, not only of maintaining national prosperity, but of continuing to provide a valuable market for the products of other countries.

Dinner at Mansion House

A dinner was held at the Mansion House, London, on February 20, on the occasion of the opening of the Fair. Mr. Oliver Stanley (President of the Board of Trade) was in the chair. The toast of "British Industry and the British Industries Fair" was proposed by the Duke of Gloucester and replied to by Mr. Oliver Stanley. Mr. R. S. Hudson proposed "The Lord Mayor." Mr. Stanley's reply to the toast proposed by the Duke of Gloucester is dealt with elsewhere in this issue (p. 213).

Empire Section

The main exhibits of interest to the drug trade were catalogued in last week's issue (pp. 185-190), and these are situated almost exclusively at Olympia, but it is worth emphasising that at Earls Court there are again to be seen some excellent examples of drugs from many Dominion and Colonial sources. Thus Australia is showing a range of Plaimar essential oils (eucalyptus, patchouli, rosemary, sandalwood, lavender, etc.), chemicals (menthol, thymol, etc.); minerals (graphite, antimony, soapstone); and a proprietary perfume (Boronia). Cyprus displays cumin, linseed, aniseed, essential oils (especially origanum), and Schisagum and Iraganol gums prepared from the locust or carob bean, with a branded face cream of which the latter is an ingredient. Kenya pyrethrum is, as might be expected, an exhibit at the East African Dependencies, but there was also a wide range of essential oils (bitter orange, geranium, lemongrass, lavender, clove stem, petitgrain, cedarwood), and some less familiar drugs such as gum animi and sim-sim.

A stand under the Government of India includes turmeric, castor seed, pepper, ginger, cardamoms, henna, cumin, fœnugreek, and others, while a special feature is a display illustrating the varieties and multifarious uses of shellac. Jamaica, and Trinidad and Tobago, have separate exhibits, the former displaying, among other things, ginger, limes, kola, quassia, annatto, pimento, orange oil and honey, and the latter including nutmeg and mace, about which a native attendant is able to give informative details. The official Malaya exhibit shows tin and some applications of it, derris, coconut, palm oil, cube, gambier, nutmeg and areca nuts, and rubber. Industrial and medicinal grades of cod-liver oil are to be seen at the Newfoundland stand.

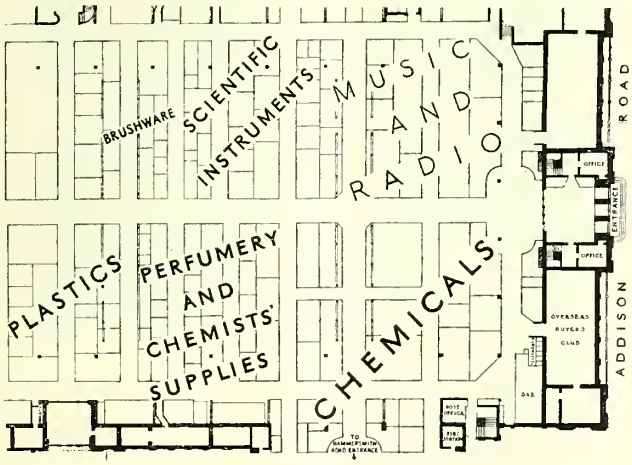
Novelties at Olympia

Having inspected these exhibits the pharmaceutical visitor is well advised to spend the remainder of his time at Olympia, where there are many novelties to engage his attention, in addition to the exhibits chronicled last week. He can see, for example, an inexpensive box camera comparable with the twin-lens cameras that have proved so popular in recent times. Like them, it enables the subject to be seen full size at the moment of exposure, and takes twelve pictures on a 120 size film. He can see also a pocketable combined magnifying lens and illuminant that may be usefully employed by botanists, or supplied to customers whose hobby is, say, stamp-collecting. Another new piece of apparatus is a viewer, with illuminant, specially suitable for

Bath-salts pourer (Gardner Co., Ltd.)

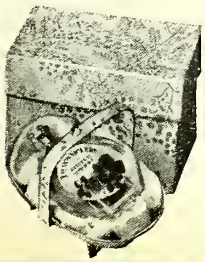
BRITISH INDUSTRIES FAIR

colour and other transparencies; this is in various sizes. The makers of this also offer enlarging frames with adjustable and scaled metal bands for providing a white margin to enlargements of any size. No doubt the most spectacular apparatus in the scientific instruments section is the "predictor," for use in aerial warfare, but this should not be allowed to divert attention from other apparatus that is shown for the first time. This includes a rigid but portable (sectional) stand for a 16-mm. cine projector—an accessory for which a demand has probably existed for some time, particularly from schools and other frequent users. Demonstrations usually attract the notice of Fair visitors, and one of the most instructive this year is the hand setting of bristles in a refillable brush—the Allure—with aluminium base and perfumed pad. The advantages of hand drawing over machine setting are clearly explained by the demonstrator. In the gallery, away from the perfumery section, the writer discovered a novelty in the form of a pourer for bath salts. The salts are supplied in a cardboard cone which is inserted in the porcelain "jug," from the foot, after removal of the top of the cone; the base is then replaced and the pourer is ready for use.



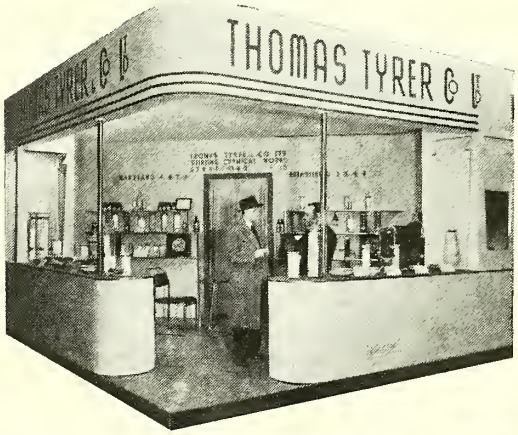
Drug and allied trade sections at Olympia

Exhibitors not mentioned in last week's list include Berkefeld Filters & Water Softeners, Ltd.; Arthur Berton, Ltd. (proofed toilet and travelling requisites, powder puffs, surgical dressings, etc.); Cadbury Bros., Ltd. (Bourn-Vita, etc.); Combined Optical Industries, Ltd. (plastic lenses and optical systems, including hardened plastic spectacle lenses); Ensign, Ltd. (cameras and accessories); Fenton Manufacturing Co., Ltd. (face squares, sponge bags, puffs, etc.); J. G. Franklin & Sons, Ltd. (rubber wares, including hot-water bottles); Gnome Photographic Products, Ltd. (electric viewers, projectors, masking frames, etc.); Jacquesil Fabrics, Ltd. (Dawn baby napkins); G. B. Kent & Sons, Ltd. (brushware, including perfumed refillable hairbrushes and a new agency display stand); Potter & Moore, Ltd. (perfumery, including a Devon violet basket novelty); Thomas Ward & Sons, Ltd. (cutlery, including Wardonia safety razors, razor blades, etc.); A. West & Partners (drawing office equipment, including pen stencils); and Zenobia, Ltd. (perfumery novelties, including True Flower series in new colour combinations and Charmol posies). In addition to the solvents catalogued last week, Howards & Sons, Ltd., are showing a range of pharmaceutical chemicals and specialities (especially British-made synthetic camphor—plain or wrapped cubes or in flowers; Sorbitol; thymol and associated bodies; gluconic acid; calcium gluconate and lactates). In demonstrations of their new stilbœstrol specialities, Boots Pure Drug Co., Ltd., have some excellent colour transparencies.



Devon Violets novelty
(Potter & Moore, Ltd.)

The British Drug Houses, Ltd.

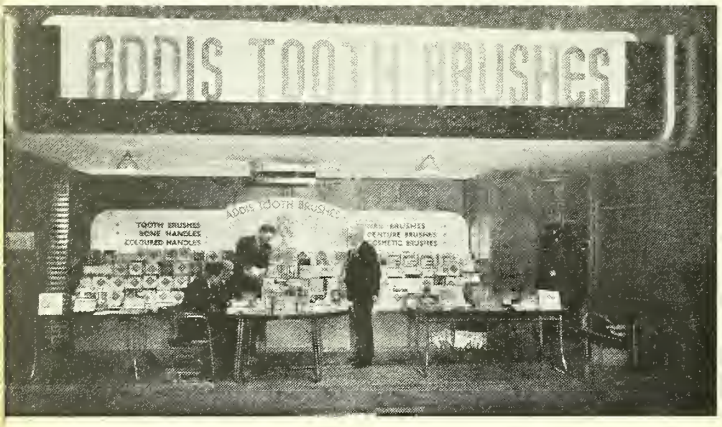


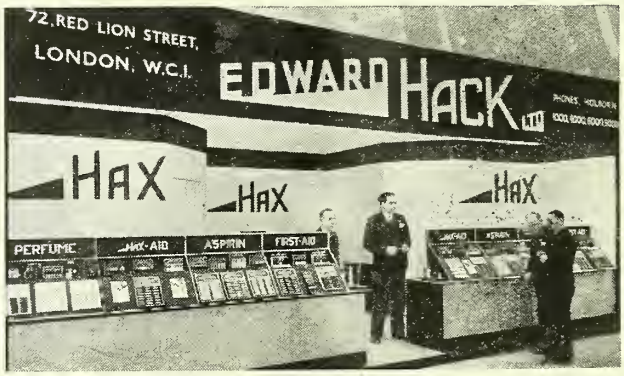
Thomas Tyrer & Co., Ltd.

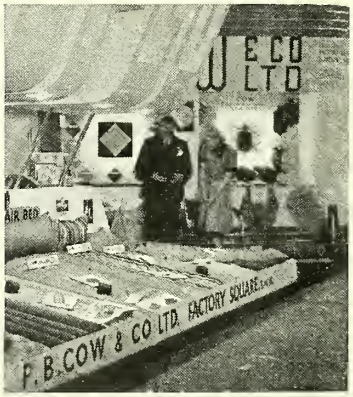
Johnson & Sons Manufacturing Chemists, Ltd.

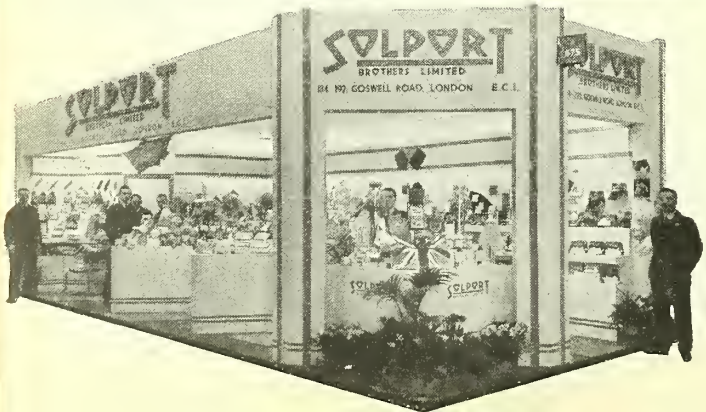
Whiffen & Sons, Ltd.

BRITISH INDUSTRIES FAIR









dis Brushworks

tter & Moore, Ltd.

Mysore Trade Commissioner

olport Bros. Ltd.

Schick Dry Shaver (England), Ltd.

Edward Hack, Ltd.

P. B. Cow & Co., Ltd.

Reliance Rubber Co., Ltd.

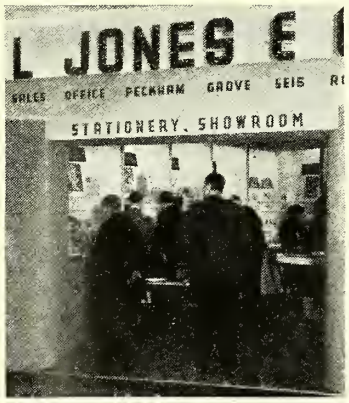
BRITISH INDUSTRIES FAIR

G. H. Gledhill & Sons, Ltd.

National Cash Register Co., Ltd.

Samuel Jones & Co., Ltd.

Arthur Berton, Ltd.



Spencer Bro
(C. J. Spencer, L

A. Simpson

Ensign, Ltd

Souplex, Ltd

A Course of Photographic Studies

(*Continued from* THE CHEMIST AND DRUGGIST, *February* 18, *p.* 192)

VII—After-Treatment of the Negative; Printing and Enlarging

THERE is little that can be done to rectify serious faults of exposure in the camera; but, on occasions when the need arises, before commencing printing it is possible to adjust for faulty development. Over-developed and under-developed negatives can be improved for printing by reduction and intensification respectively. The one reduces density to some degree and the other increases it. Either of these operations can occur with or without changes in overall contrast.

Reduction and Intensification

In photographic reduction the density of all tones can be lowered by an equal amount, thus preserving the original contrast, by means of a "subtractive" reducer such as Farmer's; this is prepared by the addition of just enough strong potassium ferricyanide to plain hypo to colour it light yellow. Alternatively, the tones can be lowered in proportion to their density, which will also lower the contrast. This needs a "proportional" reducer, which usually takes the form of a mixture of potassium permanganate and ammonium persulphate in acid solution. This is really a compromise, since persulphate alone acts as a "superproportional" or flattening reducer, in that it greatly reduces contrast by a preferential action on the highlight or dense portions of the negative. These reducers are only the chief of those available.

Since it preserves contrast, the subtractive reducer is suitable for over-exposed but correctly developed negatives. The superproportional is for under-exposed and over-developed; the aim here is to reduce contrast and yet preserve the densities in the shadows or less dense portions of the negative. The proportional developer again corrects for the over-developed negative, since contrast needs to be reduced while the average density is maintained.

Intensification is less varied in scope. It can be used only to heighten contrast to the level necessary for successful printing. Since on fixing the negative all the remaining silver salts have been dissolved out, any increase in density may come about only by deposition of more metal or by changing the image into another state. It is obvious that no amount of intensification will give detail in a negative where detail is not already present; in other words, correction for under-exposure is impossible. But if the contrast is low, owing to under-development or over-exposure followed by reduction, then this can be remedied by intensification. Salts of mercury chromium, silver, copper, lead and uranium are all used to deposit on the silver already present in the negative. Of these control is probably easiest and most adjustable with chromium. In most of the processes involved, careful intermediate washing is necessary to remove all trace of the chemical oxidiser and the acid solution it is usually used in. Then re-development in an ordinary developer usually follows, with subsequent washing and drying. Throughout these processes there is a tendency for graininess to increase and for fine-grain results correct exposure and development are essential. Over-exposed and under-developed negatives are first reduced with Farmer's solution to lower the density and then intensified to heighten the contrast.

Stains: Prevention and Cure

Stains and irregularities occur on negatives for a variety of reasons—moisture, airbells, developer fog, oils or other. Insufficient washing will give a white scum, as will also aluminium sulphate, deposited by hardener baths allowed to become alkaline by carrying over developer. An acid rinse bath will prevent this difficulty, and a bath in sodium carbonate or alkali will dissolve away the white precipitate. Milky yellow deposits are usually colloidal silver caused by insufficient sulphite or too high a temperature in the acid fixing bath: sulphite solution will remove this. A particular type of opalescence may be encountered in the use of forced drying with alcohol: this is due to a dehydration of the gelatin and is remedied by re-immersion in water and careful drying. Sulphur can give with prints the yellowish colour of silver sulphide in place of the black tones of silver: this gives noticeable fading and is best avoided by careful washing and drying and the use of active fixing solutions. Treatment of a print showing this defect is often difficult: an acid permanganate bath should be used to convert the silver sulphide to silver chloride, which can then be re-developed in daylight with an ordinary developer. Developer or oxidation stain is only a cause of difficulty when patchy, an overall stain merely meaning an increase in printing time. All developing agents oxidise in contact with the air, and local oxidation is generally due to incomplete immersion or agitation during development or fixing or an alkaline fixing bath. Stain over all the negative is most often due to old developer deficient in sulphite restrainer, or a plain or alkaline fixing bath. Such yellow stains have a powerful printing effect but may be minimised by the use of a yellow filter. With paper this course will usually increase the printing time excessively, and it is better to make a copy positive on a panchromatic or orthochromatic plate. Alternatively, acid potassium permanganate will oxidise the developer stain and the colourless soluble product may be removed by washing and the silver chloride then re-developed in the light. Such developer stain can be used to deliberate advantage for increasing contrast, if required. Colloidal silver deposits caused by the use of old silver-loaded fixing bath and by insufficient agitation or by occlusion permitting local actions may occur in fixing. The developer reduces the silver dissolved by hypo back to fine yellow silver, which deposits on the negative. Neither chromatic nor chemical methods can be entirely successful with this type of stain, because it is essentially similar in nature to the developed image. Cyanide solutions and iodine-cyanide mixtures may effect some improvement, although care is needed since they also attack the image in varying degrees. Impurities of various kinds in the processing solutions give rise to other stains. Iron may give a yellowish brown one or blue spots. Insufficient sulphite in tank developers often gives a brown oxidation scum. Dichroic fog—which seems one colour by reflected light and another by transmitted—is due to the presence of minute silver particles. These can be formed, during development, in the unexposed parts of the negative when a developer is used contaminated with some solvent such as hypo, ammonia, or excess of sulphite: or alternatively by the use of exhausted fixing baths. The developer held in the gelatin is only slowly removed and deposits dichroic fog before it diffuses away. Local pockets in fresh baths aid its formation since they give high concentrations of developer as compared to hypo in these regions. Dichroic fog is best avoided: cure is difficult but not impossible. A 1 per cent. solution of potassium cyanide will attack the dichroic silver in preference to the image, as will Farmer's, permanganate and other reducers: or a warm fresh fixing bath may be used. Traces of dye sensitisers or anti-halation backing dyes are sometimes retained, giving a pink, blue or green cast to the negative: these stains are slight and unimportant, as the light absorbed does not affect the paper. Bleaching and re-development, or rinsing in solutions of sulphite or acid nitrite, usually remove these. Finally, there are blue stains—prussian blue due to iron impurities and ferricyanide or ferrocyanide solutions: a 10 per cent. solution of potassium oxalate will eliminate these.

Printing Materials

Following any necessary after-treatment and perhaps retouching—a skilled and delicate art—the negative is ready for the printing process. There are available many processes for the production of the positive, either as a contact print or an enlargement, and the straight processes involve the use of a printing paper with a chloride, bromo-iodide or chloro-bromide emulsion. The printing paper base must be of high quality pure paper and is usually coated with baryta (barium sulphate) and calendered by passing between hot smooth rollers under pressure. The emulsion is then coated. Light falls on the finished print, passes through the emulsion, is reflected from

the base and is scattered to the eye. Under the best conditions only about 90 per cent. of the incident light returns, even if the emulsion is transparent, and even where the paper is black there is still a reflection which may be as high as 15 per cent. and never lower than 2 or 3 per cent. This seriously restricts the range of tones represented by a print on paper, since only highlight tones not exceeding 40-50 times the luminosity of the deepest shadows are capable of being rendered correctly, and this range is in fact more often 1 : 20—whereas a negative may give a visual range of more than 1 : 100. Consequently the art of printing is to reproduce during printing just those tones which are most important to the composition, and to render these in the most effective way. The simplest way of printing is to place the emulsion sides of negative and paper in contact and expose to light. This may be done in a convenient frame or box with springs to give an even and firm pressure. Any failure to preserve intimate contact will result in lack of definition. Some means to control the intensity of the printing light is advisable so that reasonable exposures can be given.

Enlargers may either have a condenser to concentrate the light on to the negative or may employ diffuse illumination, and these two methods produce notable differences in effect. The condenser system originally employed a small filament lamp with a small reflector placed behind, and a large condenser lens up to a foot across—usually two plano-convex, with their plane faces outwards—converging the light through the negative on to the lens of the enlarger. The negative thus illuminated acts as a plane source and is focused by the lens and projected to the screen or easel. Since the distance from lens to paper varies for different magnifications, it is necessary for large changes to remove the negative and confirm that the condenser lens is uniformly illuminating the field: suitable adjustment of the lamp in relation to the condenser will give an even field. Further, with a condenser system the light falling on the negative comes from a restricted angle and the scatter which occurs in the developed image has the effect of slightly brightening the contrast in the projected image. With a diffused-light system, on the other hand, the light from the bulb—usually of translucent or opal type—falls directly from the bulb and the shaped reflecting lamp-house on to the negative or on to ground glass behind the negative, and the rays illuminating the negative are thus incident from nearly all directions. Under these circumstances the scatter within the negative image has no selective effect, and no increase in contrast occurs. Thus diffused-light enlargers give a softer contrast. In general practice it seems to be agreed that a combination of the two is ideal, giving a projected image of approximately the same contrast as the negative when viewed by transmitted light. To get such a combination an opal lamp or large size source is employed with a painted or reflecting lamp-house in combination with a condenser lens. One disadvantage of the condenser type is that any scratch, abrasion or faulty variation in density is magnified on projection, and this is plainly not desirable either with miniature negatives or in professional work. Auto-focus enlargers are best equipped with diffuse systems, as no re-adjustment of lamp position is necessary when magnifications are altered. On the other hand, with diffuse systems the intensity of illumination is often small and the heat loss in the lamp-house large. Consequently longer exposures are needed and rapidity of operation cut down. In both systems the risk of heating the negative must be considered, and short exposure to the fairly intense beam in a condenser system is often preferable to long exposure in the diffuse beam, although the degree of magnification will really be the criterion.

The Enlarging Lens

The lens used for enlarging has to have rather different properties from the taking lens, although high quality taking lenses may be used for projection, if desired, without disadvantage or harm. In the first place, the negative lies in one plane and so does the paper. It is therefore not necessary to have any great depth of focus, nor, since exposures are variable, is extreme aperture needed. But even at large magnification the distances negative-to-lens and lens-to-paper will be comparable—in fact, as a rough determination, the lens-paper distance for ten diameters with a lens of 6 in. focal length will be about 5 ft. This gives an indication of the dimensions needed for the apparatus used, and of course for miniature negatives lenses of short focal length are required for high degrees of enlargement with reasonable working distances. But a more direct outcome of this difference in taking and projecting conditions is that the lens must be corrected in its aberrations for comparatively short working distances. Further, it is essential that the arrangement of the illumination and the properties of the lens should give an even spread of illumination over the entire picture area, and that absolute flatness of field without distortion should be produced by enlargement ; faults in these directions are readily noticeable, especially in architectural work. However, chromatic correction is not so important, since printing papers are sensitive chiefly to blue light. This fact allows the construction of special enlarging lenses to be simpler. Some lenses are more "soft working" than others owing to the different qualities of glass, cements and the reflection or flare losses during passage through the lens. In general, however, it is desirable not to have a soft-focus lens, as this softness in quality may be introduced if desired by other means, whereas brilliance cannot be increased. The quality of projection does influence considerably the graininess of prints, and one method of minimising or covering up graininess is to soften the results by projection through muslin. Soft-focus attachments are available, the effect of which is not so much to decrease the sharpness or definition of the projected image as to merge neighbouring tones and thus reduce the visible graininess. Using taking lenses at large apertures will give this soft effect, and it must not be considered as a test of the lens, since the conditions are vastly different. Larger apertures are desirable with short focal length lenses, small negatives, and great magnifications, so as to avoid lengthy and possibly damaging exposures. The auto-focus enlarger employs an arm running over a specially designed cam or template, so that the movement of the enlarger lens is controlled by the distance from the lens to the paper. In this way the picture is kept automatically in sharp focus for any magnification. Various systems of lighting include ultra-violet light from mercury tubes or mercury arcs, photoflood-type lamps and small-voltage lamps where main electricity supply is not available. The prevalent use is of an opal half-watt lamp of considerable wattage combined with an efficient optical system to make the most of that illumination. The negative carrier varies in type, depending on the work being done. The large-size negative is generally held between two pieces of high-quality flat glass: this arrangement, however, is liable to give rise to Newton's rings, and it is to eliminate this that some enlargers employ a negative carrier devoid of glass. Also, when strips are being used the lateral movement of the negative must be free, so that the next negative can be moved into place easily: some miniature enlargers employ a sprocket system by which 35 mm. film may be wound through the enlarger and kept taut, without needing glass covers. If an enlarger is to be used for many purposes it is as well to see that it has possibilities of adaptation to these various needs. The masks supplied should be used to cut off the parts of the negative not being used in exposure, thus avoiding stray reflections and consequent general fog or diminution in contrast. At large magnifications the light emerging from the enlarger lens traverses considerable lengths of dust-laden air and the illuminated portions of the beam suffer scatter in transit. This again effectively reduces contrast in projection and adjustment is needed in printing. Some manipulation is possible in printing to correct for various errors often unavoidable in taking the negative. The most common of these is tilting of the camera. In this event the dimensions of the image become shortened along one direction, and consequently give a converging effect to vertical lines. This can be corrected by a similar tilting in enlargement, applied both to the negative and to the easel or base-board. Elementary geometry is involved in the calculation of the tilting necessary. In practice it is perhaps best first to tilt the negative, stopping down for depth of focus, and then to adjust the easel for the correct proportions as judged by the eye or by measurement. Finally, the type of paper holder used is most important. Paper may be wasted in large quantities if a foolproof paper holder is not available. It should remain stationary, when it is opened, or the paper inserted, and not slide about, and should preferably be marked in paper sizes along the edge. A set of masks to go with it for different print sizes is a useful accessory and adds to its versatility. Practical tests form a very good basis for judging the merits of an enlarger. An old half-tone negative cast out from a process dark room will be excellent to test definition or projection, as the small dots will soon show up any failure in this respect.

(*To be continued*)

Trade Report

Where possible scales of prices of chemicals are given for bulk down to small quantities. Prices recorded for crude drugs, essential and fixed oils and coal tar products are for fair sized wholesale quantities. Qualities of chemicals, drugs, essential and fixed oils, etc., vary, and selected brands or grades would be at higher values

28 Essex Street, W.C.2, February 23

BUSINESS HAS BEEN moving on a fair scale this week, with the home trade demand showing a little more activity, while export orders have improved. The general tone and outlook is certainly much better this month than in January. The Prime Minister's observations this week, which have been interpreted to indicate there will be no material additional taxation of industry in the coming Budget has had a good effect. Business in the PHARMACEUTICAL CHEMICALS markets has been well up to recent average, and there is no change in quotations of importance to record. MERCURIALS continue firm at the advance recorded last week and a good trade in these products is reported. Sales of EPHEDRINE HYDROCHLORIDE, B.P., are said to have slackened off lately and sales prices tend rather easier.

Crude Drugs

The home demand has been sustained, while re-export business in these commodities has been better. The tone, with a few exceptions, is fully steady. AGAR continues to sell on spot and there has been a good deal of market business in new crop, the first consignments of which have been shipped this week. Curaçao ALOES continue to be one of the strong items of this market; spot sales at full prices are recorded, with supplies now moderate. Lofoten fishing continues to show unusually good results, and the Bergen shipment market for COD-LIVER OIL tends easier. The lowest prices for some years are recorded for West African GINGER. The demand for Sudan GUM ACACIA remains poor. The tendency for the lower grades of Jamaica HONEY to advance, noted last week, has developed; the general position of this market is quite healthy. HYDRASTIS remains distinctly quiet. Rather more business in Matto Grosso IPECACUANHA at steady prices. A very fair business in Japanese MENTHOL on spot is reported and the market is very steady; Japanese shippers' quotations are firm. There has been no further advance in the shipment price for Spanish-Italian MERCURY. Peppers have been in better demand and prices show a small recovery. The remaining lots of RHUBARB are firmly held at advancing prices. RUBBER is quoted at a further slight advance on the week. Importers report rather more business in spot SENNA, chiefly Tinnevelly; one lot of new crop Alexandrian hand-picked pods arrived and was sold.

Essential Oils

A fair amount of business is reported by most importers of these products and, generally, there is more life in the markets. A few lines, however, continue to disappoint, among them being ANISE (STAR), which is now being quoted at cheap prices compared with the firmer shipment market. All bulk stocks of Japanese and Chinese white CAMPHOR oil reported sold, and there are no shipment offers. CASSIA remains distinctly dull on spot, although there are sellers at well under cost of replacement. Australian EUCALYPTUS is now quoted more in line with the dearer forward market. Ho (SHIU) is in short supply and firm on spot. Shippers' quotations for new crop Sicilian hand-pressed LEMON are steady at a slight decline, and a certain amount of business is said to have been done. Brokers report shipment quotations for new crop French Guinea ORANGE firm. Business in Japanese PEPPERMINT has been quite good on spot, and the market is very steady. Japanese shippers are firmly maintaining their quotations. WORMSEED is steady at last week's advance.

Exchange Rates on London

The following is a list of the chief Continental and other exchange rates at the opening on Thursday morning:—

Centre	Quoted	Par	February 16	February 23
Amsterdam	Fls. to £	12·107	8·72	8·75
Berlin	Mks. to £	20·43	11·68	11·68
Brussels	Belgas to £	nominal	27·78	27·84
Copenhagen	Kr. to £	18·159	22·40	22·40
Lisbon	Esc. to £	110	110	110
Madrid	Ptas. to £	25·24½	nominal	nominal
Milan	Lire to £	92·46	89	89⅛
Montreal	Dols. to £	4·86⅔	4·70¾	4·71
New York	Dols. to £	nominal	4·68¾	4·68¾
Oslo	Kr. to £	18·159	19·90	19·90
Paris	Fr. to £	124·21	177	177
Prague	Kr. to £	164·25	137	136¾
Stockholm	Kr. to £	18·150	19·40	19·40
Warsaw	Zloty to £	43·38	24¾	24⅞
Zurich	Frs. to £	25·2115	20·65	20·60

Bank rate 2 per cent.

Pharmaceutical Chemicals, etc.

BUSINESS is reported to be rather better in a number of lines, and the general tone is steady. Quotations show no material change, with mercurials a strong and active feature.

ASPIRIN (TABLETS).—The agreed scale of prices for bulk quantities continues steady at the recent reductions: Under 5,000, 2s. 10d. per 1,000 tablets; 5,000 2s. 8d.; 10,000, 2s. 7d.; 25,000, 2s. 5d.; 50,000, 2s. 4d.; 100,000, 2s. 3d.; 250,000, 2s. 2½d.; 50,000, 2s. 2d.; 1,000,000, 2s. 1d. per 1,000 tablets. Wholesale distributors' prices for small quantities would be at higher figures.

BARBITONE.—Modest spot business: spot, two cwt., 8s. 11d.; 56 lb., 9s. 2d.; less than 56 lb., 9s. 5d. per lb.

BENZOIC ACID (B.P.).—Continues steady and in fair demand: five cwt., 1s. 7½d.; one cwt., 1s. 8d.; smaller parcels, from 1s. 9d. to 2s. 2d. per lb., ex store, as to quantity.

BROMIDES.—Makers' scales of prices steady. POTASSIUM, B.P., five cwt., 1s. 8d.; one cwt., 1s. 9d.; 28 lb., 2s. per lb. SODIUM, B.P., five cwt., 1s. 10d.; one cwt., 1s. 11d.; 28 lb., 2s. 2d. per lb. AMMONIUM, B.P., five cwt., 1s. 11d.; one cwt., 2s.; 28 lb., 2s. 3d. per lb. net. Resale clause applies. 28-lb. parcels and one-cwt. cases free. Smaller quantities than 28 lb. at higher prices. Export quotations are maintained as follows: POTASSIUM, B.P., five cwt., 1s. 4d.; one cwt., 1s. 4½d. SODIUM, B.P., five cwt., 1s. 5d.; one cwt., 1s. 5½d. AMMONIUM, B.P., five cwt., 1s. 6d.; one cwt., 1s. 7d. per lb., f.o.b.

BUTYL CHLORAL HYDRATE.—Market rather quiet: spot, 14 lb., 8s.; 7 lb., 8s. 3d.; 1 lb., 8s. 6d. per lb., in 1-lb. bottles.

CAFFEINE.—The scale of prices for Continental materials continue steady, as follows:—PURE: bricks, less than 56 lb., 9s. 9¾d.; 56 lb., 9s. 7½d.; one cwt., 9s. 5¼d. per lb. Powder, less than 56 lb., 10s. 1d.; 56 lb., 9s. 11d.; one cwt., 9s. 9d. per lb. Anhydrous powder, less than 56 lb., 10s. 6d.; 56 lb., 10s. 4d.; one cwt., 10s. 2d. per lb. CITRATE: less than 56 lb., 6s. 6¼d.; 56 lb., 6s. 5¼d.; one cwt., 6s. 4¼d. per lb. delivered United Kingdom, duty paid. Cases and 5-lb. tins free.

CITRIC ACID (B.P. CRYSTALS).—Fair demand at steady figures: British material quoted at 1s. 0¼d. per lb., less 5 per cent. discount, nominal and without engagement. Dealers' prices for imported material are competitive.

COCAINE.—British makers' prices for wholesale bulk quantities are quoted as follows: HYDROCHLORIDE and NITRATE, 25 oz. and over, 29s. 6d.; 16 oz. and less than 25 oz., 30s. 9d.; over 8 oz. and less than 16 oz., 31s. 9d. per oz. PURE, CITRATE and SALICYLATE, 25 oz. and over, 32s. 6d.; 16 oz. and less than 25 oz., 33s. 6d.; over 8 oz. and less than 16 oz., 34s. 6d. per oz., 16-oz. packages free. Smaller packing extra. The scales of prices applicable to distributors of smaller quantities are as follows: HYDROCHLORIDE and NITRATE, 8 oz., 34s. 1d.; 4 oz. and less than 8 oz., 34s. 7d.; 2 oz. and less than 4 oz., 35s. 5d.; 1 oz. and less than 2 oz., 36s. 5d.; ½ oz. and less than 1 oz., 37s. 11d.; ¼ oz. and less than ½ oz., 40s. 11d. per oz. PURE, CITRATE and SALICYLATE, 8 oz., 36s. 10d.; 4 oz. and less than 8 oz., 37s. 4d.; 2 oz. and less than 4 oz., 38s. 2d.; 1 oz. and less than 2 oz., 39s. 2d.; ½ oz. and less than 1 oz., 40s. 8d.; ¼ oz. and less than ½ oz., 43s. 8d. per oz., packages extra. Resale: Sales subject to buyers undertaking not to resell any quantity below the scale of prices for such quantity current at the time of resale. Export prices vary according to destination.

CREAM OF TARTAR.—Steady at former values: British material, 99 to 100 per cent., 92s. per cwt., less 2½ per cent. discount. Dealers' prices for foreign material competitive.

CREOSOTE (B.P.).—Quiet: bulk quantities, in 25-kilo demijohns, 1s. 6d.; small parcels, 1s. 7½d. up to 2s. per lb., ex store.

EPHEDRINE.—Market tends to be keen for large bulk business: Hydrochloride, B.P., quoted at about 6s. per oz. for minimum 1,000-oz. lots; small quantities, up to 7s. Pure alkaloid is quoted from 7s. 9d. to 8s. 3d. per oz., as to quantity.

METHYL SALICYLATE.—Rather quiet, quoted unchanged: spot, ten cwt., 1s. 1¾d.; five cwt., 1s. 2d.; one cwt., 1s. 2¼d.; less than one cwt., 1s. 3d.; small quantities, in bottles, up to 2s. per lb.

METHYL SULPHONAL.—Dealers' prices are keen: two cwt., 19s. 3¾d.; one cwt., 19s. 9¼d.; 56 lb., 20s. 2¾d.; small parcels, up to 20s. 8d. per lb.

PARAFORMALDEHYDE.—Steady, quiet: 100 per cent. powder, quantities, in kegs, 1s.; smaller parcels, from 1s. 1½d. to 1s. 6d. per lb., as to quantity.

PARALDEHYDE.—Not much inquiry: in carboys, quoted from about 1s. 2d., and in winchesters from 1s. 5d. to 1s. 6d. per lb.

PHENACETIN.—Makers' prices are unchanged: crystals or powder, bulk quantities, from 2s. 6d.; smaller parcels, 2s. 7d. up to 3s. per lb., as to quantity.

PHENAZONE.—Dull and quoted keenly: crystals, five cwt., 6s. 9½d.; two cwt., 7s.; one cwt., 7s. 3d.; and less, up to 7s. 6d. per lb., with powder 2½d. per lb. extra.

PHENOLPHTHALEIN.—Limited business continues: two cwt., 2s. 9d.; one cwt., 2s. 10d.; 28 lb., 3s.; 14 lb., 3s. 1d.; 7 lb., 3s. 2d.; smaller parcels, up to 3s. 6d. per lb.

PHENYLETHYLBARBITURIC ACID.—Dealers' prices, in 2-lb. bottles, are in the region of 16s. to 17s. per lb., as to quantity.

PHOTOGRAPHIC CHEMICALS.—Home makers' prices are as follows: AMIDOL.—28 lb., 8s.; 14 lb., 8s. 9d. net; 7 lb., 9s. 6d., in free 7-lb. tins; under 7 lb., 12s. per lb., in free 1-lb. bottles, less 2½ per cent., monthly terms. CHLORQUINOL.—1-lb. bottles, 21s. per lb. GLYCIN.—7 lb., 10s. 6d.; 1-lb. bottles, 13s. 6d. per lb. HYDROQUINONE.—56 lb., 4s. 10½d.; 28 lb., 5s.; 14 lb., 5s. 3d.; 7 lb., 5s. 6d.; in 1-lb. bottles, 6s. 6d. per lb. METOL.—28 lb., 9s. 6d.; 14 lb., 9s. 9d. net; 7 lb., 10s. 6d., tins free; 3 lb., 12s., bottles free; 1-lb. bottles, 12s. 6d. per lb., bottles free, less 2½ per cent., monthly terms. ALUM (PHOTOGRAPHIC QUALITY).—1 cwt., 21s. per cwt.; 28 lb. for 6s. GOLD CHLORIDE.—15-grain tubes, 45s. per doz. MAGNESIUM POWDER.—10s. per lb. PARAMIDOPHENOL HYDROCHLOR.—8s. 6d. per lb., bottles free. POTASSIUM FERRICYANIDE.—14 lb., 2s. 2d.; 7 lb., 2s. 4d.; 1 lb., 2s. 6d. per lb. POTASSIUM METABISULPHITE.—One cwt., 8d.; 28 lb., 9d.; 14 lb., 10d.; 7 lb., 1s. per lb. PYROGALLIC ACID, CRYST.—One cwt., 7s. 9d.; 56 lb., 8s.; 28 lb., 8s. 3d. net; 14 lb., 9s. 9d.; less than 7 lb., 10s. 3d. per lb., less 2½ per cent., monthly account. Resale in small packages: 1-oz. bottles, 2s.; 4-oz., 5s. 3d.; 8-oz., 9s.; 16-oz. bottles, 16s. 1½d. each, less 33⅓ per cent. to the trade. RESUBLIMED.—1-oz. bottle, 2s. 6d.; 4-oz., 6s. 6d.; 8-oz., 11s. 3d.; 16-oz. bottles, 20s. 3d. each, less 33⅓ per cent. to the trade. SODIUM CARBONATE, RECRYST.—5 cwt., 12s. 6d. per cwt.; 1 cwt., 15s. 6d. per cwt.; 56 lb. for 11s. 6d.; 28 lb. for 6s. SODIUM HYPOSULPHITE, CUBES, CRYST.—5 cwt., 17s.; 1 cwt., 19s. 6d. per cwt.; 56 lb. for 11s. 6d.; 28 lb. for 6s. SODIUM SULPHIDE (PURE).—7 lb., 1s. 9d.; 1 lb., 2s. per lb., bottles and jars free. SODIUM SULPHITE, RECRYST.—One cwt., 21s. 6d. per cwt.; 56 lb. for 13s. 6d.; 28 lb. for 7s.

POTASSIUM PERMANGANATE (B.P.).—British makers' scale of prices for home trade is as follows: Not less than one cwt., 10½d.; not less than three cwt., 10d., in drums; not less than 5 cwt., 9¾d. in 1-cwt. drums and 9½d. in 5-cwt. drums, net, delivered buyer's station, drums free. Technical or commercial quality, one cwt., 96s.; three cwt., 91s. 6d.; five cwt., 89s.; one ton, 86s. 6d. per cwt., in 1-cwt. drums.

POTASSIUM SULPHOGUAIACOLATE.—Remains dull: spot quotations steady at about 6s. 2d. per lb., as to quantity.

QUININE SALTS.—Convention prices continue steady: Sulphate, 2s. 3d.; bisulphate, 2s. 3d.; ethyl carbonate, 2s. 11d.; salicylate, 2s. 11¾d.; hydrochloride, 2s. 10d.; dihydrochloride, 3s. 1¾d.; hydrobromide, 2s. 10d.; dihydrobromide, 3s. 1¼d.; valerianate, 3s. 9¾d.; phosphate, 3s. 5¼d.; hydrophosphate, 4s. 1¾d.; alkaloid, 3s. 1¾d. per oz., 100-oz. tins free, carriage paid on bulk quantities.

RESORCIN.—Market is steady at makers' prices: crystals, 56 lb., 5s. 6d.; 28 lb., 5s. 7d.; 14 lb., 5s. 9d.; 7 lb., 6s.; less than 7 lb., up to 6s. 6d. per lb.

ROCHELLE SALTS.—Makers' prices are steady:—

—	Pulv. Sod. Pot. Tart. B.P.	Pulv. Seidlitz	Double Seidlitz
	Per cwt. s. d.	Per cwt. s. d.	Per cwt. s. d.
Under 1 cwt.	85 0	68 0	76 5
Under 5 cwt.	82 6	66 3	73 3
Over 5 cwt. in one delivery ...	80 0	64 3	71 0

Soda pot. tart. cryst. at 2s. 6d. per cwt. extra to powder, net, 14 days. Special prices for quantities. Contracts accepted subject to a rise and fall clause.

SACCHARIN.—Convention price for 550 is 37s. 6d. per lb. duty paid, with rebates for quantities.

SALICYLIC ACID (B.P.).—Quotations steady at makers' prices: five cwt., 1s. 7d.; one cwt., 1s. 7½d.; 28 lb., 1s. 10d.; 14 lb., 1s. 11d.; 7 lb., 2s. 0¾d.; 4 lb., 2s. 2½d. per lb.

SODIUM BENZOATE (B.P.).—Average demand, prices steady: five cwt., 1s. 3½d.; one cwt., 1s. 4d.; smaller parcels, from 1s. 5d. to 2s. per lb., as to quantity.

SODIUM DIETHYLBARBITURATE.—Occasional limited sized business: spot, one cwt., 11s.; 28 lb., 11s. 3d.; 14 lb., 11s. 6d.; 7 lb., 11s. 9d.; smaller parcels up to 12s. 3d. per lb.

SODIUM SALICYLATE (B.P.).—Moderate inquiry; makers' prices unchanged: home trade, crystals or powder, five cwt., 1s. 5½d.; one cwt., 1s. 6d.; 28 lb., 1s. 9d.; 14 lb., 1s. 10½d.; 7 lb., 1s. 11¾d.; 1 lb., 2s. 4d. per lb.

TARTARIC ACID (B.P. CRYSTALS).—Fair inquiry: British makers quote at 1s. 1¼d. per lb., less 5 per cent. discount, dealers offering foreign materials at competitive prices.

TERPINEOL.—Convention scale of prices continues at the reduction recently recorded: ten cwt., 11d.; five cwt., 11½d.; one cwt., 1s.; smaller quantities, up to 1s. 4½d. per lb., net.

Crude Drugs, etc.

AGAR.—Steady sales with values all fully maintained. Cabled advice that first shipments of new crop Kobe No. 1 have been effected: spot, Kobe, No. 1, 3s. 8d. to 3s. 9d.; No. 2, 3s. 7d.; and in very short supply. Yokohama, No. 1, 3s. 5d. per lb. Japanese shippers quote Kobe, No. 1, 3s. 4d. to 3s. 5d.; No. 2, 3s. 2d. to 3s. 3d., and Yokohama No. 1, 3s. per lb., c.i.f. Re-sellers: January-February, No. 1, 3s. 3d.; for February-March, 3s. 2½d. per lb., c.i.f.

ALOES.—Curaçao selling in good quantity on spot at full prices; market is firm; no shipment offers: Cape, spot, in boxes, 47s. 6d.; shipment, 43s. per cwt., c.i.f. Curaçao, spot, 18os. up to 190s. for delivery.

It is reported that, due to heavy rains, the crop of Curaçao aloes will be retarded, and the quality may be inferior. During the period July-September, 1938, production totalled about 75,000 lb., and exports during the same period amounted to 137,000 lb.

ANTIMONY.—Values level on the week, market quiet: Chinese, crude, spot, £36; shipment, February-March, £29, c.i.f. English regulus, £71 per ton, ex store.

BUCHU.—Spot business has been small: spot, rounds, 1s. 2½d. to 1s. 4d. per lb., as to quality and quantity, ex store. No shipment quotations for new crop.

CAMPHOR.—Moderate business on spot, quotations unchanged: Japanese monopoly BB brand, £7 10s. per 100 lb.; Japanese, natural, spot, tablets, 2s. 6d.; powder, 2s. 3d.; slabs, 2s. 2¾d. per lb., ex store; shipment, tablets, 2s. 2d.; powder, 1s. 10¾d.; slabs, 1s. 10½d. per lb., c.i.f. English refined flowers, one cwt., 3s. 1d.; 28 lb., 3s. 2d.; small lots, 3s. 3d. per lb. Transparent tablets, 4 oz., 8 oz. and 16 oz., 3s. 4d.; 1 oz. and 2 oz., 3s. 5d.; ½ oz., ⅓oz. and ¼ oz., 3s. 6d.

CARDAMOMS.—The forward position is rather easier, business generally quiet: shipment, Aleppy greens, f.a.q. the season, 2s. 4d., c.i.f.; Aleppy seed, 3s. 4d., c.i.f.; Mangalore seeds, 3s., c.i.f.; spot, Aleppy seed, 3s. 9d.; Mangalore seed, 3s. 9d. per lb. Aleppy greens, spot, 2s. 7d., ex store.

CASCARA SAGRADA.—Average amount of smallish spot business done at steady prices: spot, 1938 bark, 52s. 6d.; 1937 bark, 57s. 6d.; 1936 bark, up to 65s. per cwt., ex store, duty paid. No shipment offers from the source.

CLOVES.—Market is steady with Madagascar slightly dearer forward: Zanzibar, spot, 8¾d.; shipment, March-April, 8d. per lb., c.i.f. Madagascar, in bond, 8d.; shipment, March-April, 7d. per lb., c.i.f.

The landings of Zanzibar in London during the week ended February 18 were 165 and the deliveries *nil* leaving a stock of 448*. From January 1 to date the landings of Zanzibar have been 216 and the deliveries 48. Landings of Madagascar for the week ended February 18 were 131, and the deliveries 168, leaving a stock of 194. From January 1 to date the landings of Madagascar have been 152 and the deliveries 401. * Figures adjusted by Port of London Authority.

COD-LIVER OIL.—Bergen reports Lofoten fishing continues good under favourable conditions. Results to February 18: 30,990 tons of cod and 15,327 hectol. of oil, compared with 18,870 tons of cod and 7,812 hectol. of oil on the same date in 1938, and 23,774 tons of cod and 12,646 hectol. of oil in 1937. Shipment market remains dull with a downward tendency: finest Lofoten steam-refined non-freezing medicinal oil, 82s. per barrel, c.i.f. London. Small lots, on spot, about 130s. per barrel, ex store, duty paid. British finest medicinal oil, 115s. per 25-gallon drum, delivered U.K., with rebates for 25 or more drums.

ERGOT.—Business has been of small account: spot, Polish, 3s. 6d. to 3s. 8d.; Portuguese, 4s. 3d. per lb., ex store.

GINGER.—West African product continues to be quoted at very cheap figures: West African, spot, 19s. 6d.; for arrival, 17s. 3d. per cwt., c.i.f. Jamaican, spot, bold, in barrels, 65s. to 73s.; medium bold, in bags, 47s.; small grinding, in bags, 40s. to 42s. 6d. per cwt., c.i.f.

GUM ACACIA.—Market has attracted but little interest this week: Kordofan, cleaned sorts, spot, 40s.; shipment, 36s. 6d. per cwt., c.i.f.

HONEY.—The firmer tone in the cheaper grades of Jamaican reported last week has developed with higher prices now quoted: spot, dark liquid, manufacturing, 31s. up to 40s. for pale set; Californian, white clover, 47s. 6d., duty paid. Canadian, 43s. to 46s. per cwt. Small lots of all descriptions at higher prices.

HYDRASTIS.—Steady with the demand quiet: U.S.P., spot, 12s. 6d., untested; shipment, 12s. 3d. per cwt., c.i.f.; high test root, up to 14s. to 14s. 3d. per lb., spot.

IPECACUANHA.—Rather more inquiry on the market: Matto Grosso, B.P., spot, 6s. 9d. to 7s., as to test; shipment, 6s. 6d. per lb., c.i.f. Carthagena, 5s. per lb., ex store.

MENTHOL.—The Japanese product is fully steady on spot and firm forward: K/S brands, spot, 12s. 7½d. to 12s. 9d.; near afloat, 11s., c.i.f. Japanese shippers are firm, with March-April at 10s. 9d. to 11s., c.i.f. Market sellers of January-March at 10s. 9d., c.i.f. Chinese, spot, 11s. 9d. per lb. French material is quoted at 11s. 6d. per lb., delivered.

MERCURY.—The shipment quotation for Spanish-Italian metal is firm at the recent advances at 77 dollars per bottle, f.o.b. Continent; spot, £16 10s. per bottle, ex store.

PEPPER.—The market is steadier, with rather more business reported: Lampong, in bond, 2½d.; shipment, March-May, 2⅜d.; August-October, 2 7/16d., c.i.f. Tellicherry, spot, 4d.; shipment, March-April, 3zs., c.i.f. Aleppy, spot, 3¾d.; shipment, March-April, 3zs. 6d., c.i.f. White Muntok, in bond, 3½d.; shipment, March-May, 3½d., c.i.f. London Terminal Market: Black, March, 2½d.; May, 2½d.; July, 2 9/16d.; White, March, 3⅜d.; May, 3 7/16d.; July, 3½d. per lb.

RHUBARB.—The spot market is very firm, with stocks running out: rough round, only limited selection quoted, from 2s. 1d. to 2s. 4d. per lb. A few cases of small to medium Shensi held firm from 5s. per lb., ex store. One small parcel of rough round reported available at Shanghai and quoted by shippers from 1s. 10d. to 2s. 2d., c.i.f. A little lot of Shensi has also been offered from the source and would work out at 5s. 6d., landed.

RUBBER.—A moderate business is recorded, with values showing a further slight recovery on the week: standard ribbed smoked sheet, spot, 8⅛d.; March, 8⅛d.; April-June, 8 3/16d.; July-September, 8¼d.

SEEDS.—ANISE.—Spot, duty paid, Spanish, 77s. 6d.; Bulgarian, 44s.; no Syrian or Russian offering on spot. CANARY.—Spot, duty paid, Mazagan, 15s. 6d.; Morocco, 14s. 6d.; Turkish, 13s.; Plate, 12s. 9d.; Spanish, 24s. to 36s. 6d. CARAWAY.—Dutch, on spot, now 34s., duty paid; 29s. 6d. quoted f.o.b. Holland. CORIANDER.—Morocco, spot, 17s. 6d., duty paid, and 16s., in bond; 15s. 3d., c.i.f., quoted for prompt shipment. CUMIN.—Spot, Malta, 45s., duty free. Morocco not offering on spot; 42s., c.i.f., quoted for shipment. FENNEL.—Spot, Indian, 21s. to 22s. 6d. FENUGREEK.—Spot, Indian, 13s. 6d.; Morocco, 13s., duty paid. MUSTARD.—English, 22s. to 31s., according to quality.

SENEGA.—Market has remained quiet: spot, 2s. 9d.; shipment, no offers.

SENNA.—In better demand. Tinnevelly leaves: supplies of good green quality getting scarce: fair No. 1 offered on spot at 6¾d.; No. 2 at 4d.; No. 3 at 2¾d.; No. 4 at 2¼d. per lb. Tinnevelly hand-picked pods: pale selected available at 5d. to 6d. per lb.; darker grades at 3½d. to 4d. per lb. Hand-picked Alexandrian pods: many inquiries for new crop selected, but supplies not yet available. Spot supplies of old crop good quality cleared and only poor selection available of ordinary, inferior grades offering at 2s. 3d. down to 1s. per lb. Manufacturing quality Alexandrian pods in better demand owing to scarcity of Tinnevelly variety: quotations range from 2¾d. to 4½d. per lb., according to quality. In one quarter it is reported that a small parcel of Alexandrian new crop hand-picked pods of medium bold nice quality has arrived and was sold at good figures.

TRAGACANTH.—More interest has been shown in this article, and fair sales have been made covering all grades of gum: finest selected, white ribbon, £60; No. 1, white, £55 to £57 10s.; No. 2, white, £50 to £53; No. 3, white, £35 to £42 10s.; amber leaf, £32; cleaned amber sorts, £16; brown to amber leaf, £11 10s.; red leaf, £9 to £10; hoggy, £6 to £7 per cwt., ex store.

TURMERIC.—This market remains quiet and is quoted unchanged: Madras finger or Rajapore, new crop, March, 28s.; April-May, 26s. 6d. per cwt., c.i.f. Madras finger, spot, 32s. per cwt., ex store.

WAXES.—BEES'.—The demand has been rather quiet, with quotations generally unchanged: Dar-es-Salaam, spot, 100s.; shipment, 96s., c.i.f. Benguella, 90s., in bond; shipment, 84s. 6d., c.i.f. Conakry, 90s., in bond; shipment, 84s. 6d., c.i.f. Japanese, spot, 60s., duty paid; shipment, February-March, 52s. per cwt., c.i.f. Madagascar, f.d.e., 92s. 6d., duty paid; shipment, new crop, 77s. 6d., c.i.f. CARNAUBA.—Shipment offers are restricted; spot business quiet: fatty grey, spot, 145s.; afloat, 140s.; shipment, February-March, 140s., c.i.f. Chalky grey, spot, 143s.; shipment, February-March, 135s., c.i.f. Primeira, spot, good quality, 185s.; shipment, February-March, 176s.; Mediana, spot, 177s. 6d.; shipment, 172s. 6d. per cwt., c.i.f.

Essential and Expressed Oils, etc.

BUSINESS has been patchy but the recent small improvement in demand is being maintained. Sicilian lemon has sold fairly well. Japanese peppermint is fully steady on spot and firm forward.

ANISE (STAR).—The spot market remains dull with sellers at cheap figures. Shipment offers are dearer on the week: spot, leads, nominal; tins, 3s. 3d.; drums, 3s. 2d. per lb., ex store; shipment, tins, 2s. 11d. per lb., c.i.f.

BERGAMOT.—Conditions at the source are reported steady with the Consortium shipment price for new crop oil in coppers at 15s. per lb., c.i.f. Spot prices are from 15s. 3d. per lb., with blended oils at cheaper figures.

CAMPHOR.—Values for bulk quantities of Japanese or Chinese white oil are nominal owing to entire lack of bulk stocks. There may be a small lot or two in tins with the value nominal at 250s. per cwt.

CARAWAY.—Quite a fair seasonal business continues on spot: Dutch rectified, 7s. 3d. to 7s. 9d.; crude, 6s. 9d. to 7s. 3d. per lb., as to quantity, landed and duty paid.

CASSIA.—Spot sellers are asking cheap prices, but the demand is still poor: spot, leads at about 3s. 3½d. and drums at 3s. 2½d. Shipment offers of leads from China at 3s. 4d., c.i.f.

CASTOR.—Quiet values level on the week: 39s. 6d. per cwt., in barrels, ex store, London. Hull, 2s. per cwt. less. Small quantities packed in cases, 4s. 6d. per cwt. extra.

CINNAMON LEAF.—Moderate spot business in small quantities: Ceylon oil, repacked in limited quantities, about 2s. 6d. to 2s. 9d. per lb., as to quantity.

Exports from Ceylon during January–November, 1938, totalled 2,511,000 oz., valued at Rupees 398,000, compared with 2,676,000 oz., valued at Rupees 421,000 in the corresponding elevent months of 1937.

CITRONELLA.—Shipment conditions for both oils are reported steadier and small business in the Java product is recorded: Ceylon, spot, drums, from 1s. 6½d.; smaller parcels, up to 1s. 11d.; shipment, drums, about 1s. 4¼d. per lb., c.i.f. Java, spot, drums, about 1s. 7½d.; smaller parcels, up to 2s.; shipment, drums, about 1s. 1¾d. per lb., c.i.f.

Exports from Ceylon during January–November, 1938, totalled 1,472,000 lb., valued at Rupees 1,079,000, compared with 1,404,000 lb., valued at Rupees 1,234,000 in the corresponding eleven months of 1937.

CLOVE.—Some heavy business recorded this month for shipment; fair spot sales: Madagascar, spot, drums, 2s. 7d. per lb., if available; smaller parcels, up to 3s. 3d. English distilled, 4s. 6d. to 4s. 9d. per lb., ex store.

COCONUT.—English deodorised is steady and quiet at £24 15s. per ton, in barrels, ex works.

EUCALYPTUS.—A good deal of the cheaper spot goods have been cleared and values are now approaching the higher shipment values. Australian, 70 to 75 per cent., tins, 1s. 6d.; drums, 1s. 5d.; 80 to 85 per cent., tins, 1s. 8d. per lb., ex store, with higher prices for small lots; shipment, 70 to 75 per cent., tins, 1s. 5d.; drums, 1s. 4½d.; 80 to 85 per cent., 1s. 7d. per lb., c.i.f.

HO (SHIU).—Continues firm and in small supply on spot: "improved" now 4s. 10½d. to 5s., and "extra" quality up to 5s. 3d. per lb. Shipment offers for May shipment only at high figures.

LEMON.—Shipment quotations for new crop Sicilian hand-pressed oil have ranged round about 9s. 6d. to 9s. 9d. per lb., c.i.f., as to brand, and a fair business is reported so far this month. There is a rumour, not confirmed officially, that the Decree prohibiting the extraction of oil from peel to be brined has been withdrawn. Spot values for good quality oil on spot range from 10s. 6d. to 11s. for small quantities, with blended oils at cheaper prices. Machine-made oils at the usual discount. Californian distilled, regular quality, 1 dollar 54 cents per lb., landed. Californian cold-pressed is sharply dearer at 2 dollars 35 cents per lb., c.i.f. The distilled oil has been selling well, and supplies available are limited at the moment.

LINSEED.—Raw oil, in small quantities, 26s. 9d. per cwt.; boiled oil, 29s. 3d. per cwt., ex works.

NUTMEG.—Market is steady; fair amount of small business: Dutch and American, from 5s. 4½d. to 5s. 9d. per lb., as to quantity.

OLIVE.—Steady at the recent decline, business slow: B.P., 1 per cent., 5s. 9d. to 6s. per gallon, in drums. Edible quality, ten 1-gallon tins, in cases, 80s.; twenty ½-gallon tins, in cases, 82s. 6d. per case; drums, 6s. 3d. per gallon, ex store.

ORANGE.—It seems that shippers of reliable quality genuine new crop oil are maintaining their shipment prices for French Guinea oil at 2s. 2d. to 2s. 3d. per lb., c.i.f., in drums. At the same time there are offers at cheaper figures, but these may refer to old oil at the Coast: spot, drums, about 2s. 8d.; re-packed in tins, up to 3s. per lb. Californian, small drums, 59 cents; two or more cases, 61 cents per lb., ex store. Florida, cold-pressed, 85 cents per lb., in drums, landed, London.

PALMAROSA.—No important business noted; values appear fully steady: spot, about 8s. to 8s. 1½d. per lb. for bulk purchases; shipment is steady at 7s. 6d. per lb., c.i.f. Java oil is available at about 4s. 3d. per lb., ex store.

PEPPERMINT.—The Japanese product has sold steadily this week: spot, 4s. 6d. to 4s. 7d. Japanese shippers are firm, with March-April at 4s. 4d., c.i.f. Market sellers of January-March at 4s. 3d., c.i.f., with buyers at 4s. 2d. A good Continental demand on the market for February-March at 4s. 2d., c.i.f., but there are no sellers at this figure. Natural American oil, in drums, continues firm at 2 dollars 25 cents to 2 dollars 35 cents per lb., c.i.f.

SANDALWOOD.—Genuine East Indian Mysore, in one-case lots, steady at 20s. 6d. per lb. East Indian, produced outside the province of Mysore, 18s. 6d. to 19s. per lb., c.i.f., in bulk quantities. English-made West Indian, 7s. 3d. per lb. Australian, steady at 15s. 3d. per lb. for 7-lb. tins; one case at 14s. 9d. and five cases at 14s. 6d. per lb.

SASSAFRAS.—A limited sale, quotations unchanged: genuine natural oil of fine quality offered at 4s. to 4s. 3d. per lb., as to quantity. Other grades at cheaper prices.

SPIKE.—Demand is quiet: genuine Spanish oil is quoted from 5s. to 5s. 6d. per lb., ex store. Blended oils at cheaper figures.

TURPENTINE (AMERICAN).—London stocks on February 11 totalled 28,301 barrels: spot, London, 34s. 3d.; Hull, 35s. 3d.; Liverpool, 36s. 3d. per cwt. Market is dearer.

VETIVERT.—Business remains poor: Bourbon, about 15s. 6d. to 17s. per lb., and slightly less for drums, ex store.

WORMSEED.—U.S.P., spot, 9s. 9d.; shipment, 9s. 6d. per lb., c.i.f. B.P., spot, 10s. 3d.; shipment, 10s. per lb., c.i.f.

Correspondence

Correspondents may adopt an assumed name, but must in all cases furnish their real name and address to the Editor

The National Formulary

SIR,—I spent the whole of yesterday morning comparing the old and new National Formularies and cannot decide even now whether I was more amused than irritated. I note what I consider a few minor improvements ; some delightful pedantry ; some changes, for good or ill, of the *status quo*, goodness knows ; some opportunities for some glorious confusion ; and the continued acceptance and approval of magnificent inaccuracy. That is the patient's funeral, however, so why bother? But why, when the book represents the National Formulary, must the indication N.F. be so spasmodically used? It either is, or it isn't—and it is.

At long last I note the avoidance of pulv. ac. boric in aurist. boric.—Cheers. Why liq. azorub., B.P.C., instead of the old accepted title liq. rub.? It sounds and reads more learned, I suppose. In collyr. ac. boric. and ac. boric. c. hyd. perchlor, I note the ac. boric. is increased in one case and reduced in the other. Standardisation, I suppose—but why was it ever otherwise? I profoundly hope that no doctor in my neighbourhood prescribes elixir caffein. iodid., especially on a Saturday night. I guess I'll be " out " of " cawfee " and too late to get any. But surely, if the taste is so abominable, some other disguise could have been adopted. High grade pharmacy, I suppose, but I confess to a lack of enthusiasm in that direction. Then in linctus codein co., why use syr. tolu for syr. pruni serotina? At long last the old unpharmaceutical formula for linct. morph. rub. has been deservedly scrapped, but why glycerin, all the same? Now, I approach, warily mind you, what seems to be the tit-bit of the whole compilation:—

Liq. antisepticus N.F.
p. chlor-*m*-xylenol.
Ac. ricinoleic.
Triethanolamin.
Ol. melaleuc. alternifol.
Spt. meth. indust.
Aq.

If it did not happen to be Latin, I should have to confess that it was all Greek to me. I own up to being old (63) but won't admit " prehistoric," and I've got what I consider a reasonable pharmaceutical library: viz., four successive B.P.s two B.P.C.s including the latest, and the *C. & D.* Pharmaceutical Formulary, but though I spent some time in research, I can find no information whatever on *p.* chlor-*m*-xylenol, ac. ricinoleic., and ol. melaleuca alternifol. Neither can I find any mention of these wonderful things in any wholesale list. I sought information from a more modern qualified chemist and regret to state that all the advance in knowledge I got was not exactly helpful. I've consulted several travellers, who should know, and they've volunteered to be searched by me—offer declined. I find a reference to triethanolamine—what a hateful word to write—in the B.P.C., but no evidence of supply in any wholesale list. So what do I do? And suppose I supply ol. melaleuca leucadendron instead of alternifolia, shall I get hanged? If I get that cursed thing to dispense, my answer will be " wrong numbah: sorree you've been troubled." But why, if these things are nationally accepted, are they not in the B.P.? In my judgment, the best thing to do is to scrap the B.P. entirely—it was only legally useful for " frame-up " prosecution—and accept the B.P. Codex as the standard ; it is infinitely more useful than the B.P. ever was—and, I prophesy, will be. Now coming to the dear old popular " bottle of medicine," eighty-eight of them, more than twice the number of my own particular proprietaries that cover, I think, the common ills of life, and of which I sold 6,500 last year. I note that trouble has been taken to print N.F. after each: that although the difference in dose is only in one out of the eighty-eight and that is " after food," the remaining eighty-seven have the dose specifically printed. Why? To make work, I suppose. A change, which after all is no change, occurs in the dose. In the old N.F., you may remember, the official dose was ʒss. t.d.s. ex aqua ; and not one dispenser within my knowledge labelled as instructed. Now, although the official dose is obviously calculated to ʒss. the patient is not instructed to take that particular dose, but anything up to double that quantity, which is very very British and very very medical. The simple term for this procedure is " bunk." I wonder why the compilers did not adopt the simple procedure of putting all the solid ingredients first, instead of mixing them up with the liquids ; and why when tinct. ipecac. has been replaced, for financial reasons I presume, in most cases by ext. ipecac. liq., has it not been retained throughout? How are we expected to measure eight minims, anyway? I notice a further economy in the use of liq. ammon. dil. instead of liq. am. aromat. Splendid. But what they gain in that direction they throw away by replacing caffein. cit. by caffein. Too bad. And absolutely hurling away money with both hands by replacing ol. cassiæ by aq. cinnam. I scarcely see any advantage in the change. I trust the calculations have been correctly carried out. I foresee a grand confusion with tab. acetylsal. co. between the old and the new. Oh! I had nearly overlooked one important and startling distinction, i.e., the various waters used for diluting lotions. Aq. font. specially presented for all those containing liq. plumbi. I'll admit not being too sure of my ground here, but I've always interpreted aq. font. to mean natural water: not just tap water you observe. And how many chemists collect rain water, if you please? Now I'm really old-fashioned here. I do, in a tank in the stable, and I daresay there is at least two inches of mud at the bottom, and I occasionally sling out a dead unfortunate rat. I only use the water for my car radiator, but still, if it's official, oh they're welcome. But why not aq. dest. for lead lotions? It seems a sad pity that the compilers of this book did not include a logical, businesslike practical pharmacist. I suppose that the Ministry of Health is useless in this direction, as usual. Finally, I've just handed out a dirty bottle with a dirty label on to an individual whose name I could neither read nor guess. The prescription was scrawled by someone whose name also I can neither read nor guess, and the dose was indeterminable, hence the old label. The medicine was right, anyhow. And one pharmaceutical mandarin calls this practice the achievement of status.—Well, well!—Yours truly,

GEORGE F. CORRALL.

Enfield.

SIR,—It was admittedly a mistake in the first place to use the title tab. acid. acetylsal. co. in the National Formulary for tablets containing acid. acetylsal., phenacetin and pulv. ipecac. et opii, when there were already tablets of different composition known by that name. By now everybody has become familiar with this nomenclature, and although the alteration brings the titles back to their original products, there is sure to be a certain amount of confusion at first, just as there was with thyroid tablets when the dried product became official, and one had to ascertain that the prescriber was not thinking in terms of the fresh gland. Since the inclusion in the National Formulary of tab. acid. acetylsal. co. containing Dover's powder, the original tablets of aspirin, phenacetin and caffein have become known, and are frequently prescribed as tab. A.P.C., so that there is no question of which one the doctor intends. As is always the case when there is any alteration in names or formulas, for the first few months prescriptions will come in for tab. acid. acetylsal. co. when the old one is indicated, and we shall have to make certain of this before dispensing.—Yours faithfully,

A. P. C. (19/2).

British Pharmaceutical Conference

SIR,—I am greatly obliged to " Obiter Dictum " for his letter in your issue of February 18 (p. 199) as it strengthens my contention very considerably. Contrary to his surmise, I attended regularly the Science and Practice Sections of each Conference up to 1914, when, as he says, the attendance at Chester was 200. At Edinburgh last year, where 700 were present, there was (according to " Obiter Dictum's " own showing) " as large attendances at the Science Sessions " as in 1914. But, surely, with over three times the number present at Edinburgh, there should have been at least twice as large a gathering to listen to the scientists. As a matter of

fact, there was not, and a comparison of the Conference papers and the personnel at the Conferences of 1914 and 1938 may indicate the reason. "Obiter Dictum" finds only four papers out of twenty-six read at Edinburgh likely to be of interest to the chemist in business. If he looks into the matter again he will find that fourteen embodied the results of research in the laboratories of manufacturing firms, nine were read by members of the staffs of academic institutions, two came from private individuals and one from the laboratory of the British Pharmacopœia Commission. At Chester, besides the presidential address, there were contributions by four other pharmacists in retail business—Mr. E. W. Pollard ("Some Uses of the Tincture Press"), Mr. Ernest Quant ("Purity of Pepsin"), Mr. E. Saville Peck ("Uniformity in the Dispensing of Abnormal Prescriptions") and Mr. T. O. Barlow ("Business Science in Pharmacy"). Furthermore, it is instructive to compare the practicability of the work done in the laboratories and academic institutions in those days with the abstruse contributions of recent years. At Chester, Mr. John C. Umney discussed the "Composition of Glycerophosphates," Mr. Horace Finnemore gave the results of three different researches, Mr. R. R. Bennett threw new light on the preparation of "Liquor Opii Sedativus," Mr. F. W. Crossley Holland showed how "Ext. Filicis Liq." could be made more palatable, and Mr. H. Wippell Gadd gave useful hints on the "Legal Obligations of Dispensers." It is perfectly true (as "Obiter Dictum" says) that any publicity the Conference gets is largely due to the Science papers, but is that not mainly owing to the fact that the far more entertaining discussions at the meetings of the branch representatives are not made public until some weeks after the event, and then only in the trade journals? By all means let the fine work done by the Science Section continue and those interested will attend as usual; but to compel others to attend who would rather see the places of interest in the surrounding country in the company of their wives and lady friends is an attitude to which I, and many others, strongly object.—Yours truly,

SENECTACUS (20/2).

Assistants' Examination Advocated

SIR,—Mr. H. M. Hirst, answering a question at the meeting of the National Pharmaceutical Employees' Association (*C. & D.*, February 18, p. 172), said he favoured the idea of an examination for assistants. To my mind such an examination should have been instituted long ago (to include dispensing and prescription reading, but not an extensive syllabus of academic subjects) and be open only to those who had served an indentured apprenticeship. Then the opportunity could have been taken of restricting the personnel of pharmacy to three classes—apprentices, employees with the assistants' certificate, and fully qualified pharmacists entitled to be in charge of or to own a pharmacy. If this had been the course decided on years ago, pharmacy would now enjoy a much better status and there would not be the many half-trained persons one sees behind the counters to-day. Mr. Hirst said he would make the minimum age thirty. I suppose this would be in case some persons went in for the assistants' examination and did not trouble to get qualified, or else it might be considered that if a candidate had not qualified before that age he never would. But if the assistants' examination were made a step towards full qualification, with credit for the subjects already passed, these considerations would not arise.—Yours faithfully,

OLD ASSOCIATE (19/2).

Proposed Chemists' Friends Undertaking

SIR,—At the meeting of the Bradford Branch of the National Pharmaceutical Union (*C. & D.*, February 18, p. 170) a suggestion was made that chemists should be asked to sign an undertaking not to display or push eligible lines which were not on the Chemists' Friends scheme, the penalty for default to be the inability to obtain C.F. goods in future. That is on a similar principle to the rules of the P.A.T.A. Actually it amounts to a stop list of those who break their obligation to the scheme, and although the theory of the suggestion is good, there might be certain difficulties in practice. In the case of the P.A.T.A., price protection is the object and a definite minimum retail price is set out. But the price protection of the P.A.T.A. applies to the goods on its list wherever they may be sold, while the C.F. scheme is only worked by pharmacists.—Yours faithfully,

PROTECTIONIST (20/2).

Miscellaneous Inquiries

We do not undertake to analyse and report upon proprietary articles nor to publish supposed formulas for them

J. C. (17/2).—CONVULSIONS OR BLIND STAGGERS IN PIGS.—This complaint is dealt with in the current edition of "Veterinary Counter Practice," on p. 294, as follows:—"In treating the animal, one should endeavour to find the cause, whether it is due to worms, teeth or indigestion. It is advisable to give a dose of worm medicine and afterwards a mixture for the fits:—

Potass. bromid.	ʒij.
Potass. iodid.	gr. xii.
Aq.	ad ℥vj.

ʒss. to ʒj., according to the size of the pig, two or three times daily in food, or if a powder be preferred:—

Potass. bromid.	gr. xx.
Mag. carb. pond.	ʒss.

Give half to a two- or three-month-old pig and a full dose to bigger pigs twice daily in food. If necessary give occasional doses of mag. sulph. or sod. sulph. Feed on sloppy food consisting of sharps and barley meal, and do not overfeed."

J. B. (21/2).—CALAMINE CREAM.—The following is an alternative formula which will probably be somewhat thinner than your own preparation.

Calamine	40 gr.
Zinc oxide	20 gr.
Lime water	3 dr.
Olive oil	to 1 oz.

E. G. M. (21/2).—HAIR GROWING POMADE.—The following formula will probably meet your requirements:—

Cantharidin	gr. j.
Acetone	ʒiij.
Otto of rose	♏viij.
Oil of bergamot	ʒss.
Benzoated lard	℥viij.
Soft paraffin	℥viij.
Yellow wax	ʒj.
Balsam of Peru	ʒiij.

Liquefy the wax and stir in the fats, following with the Peru balsam, and stir well to produce a cream. Then add the perfume and cantharidin dissolved in the acetone.

S. P. (21/2).—HYDROGEN PEROXIDE.—The information you require is given in the *C. & D.* Commercial Compendium, December 25, 1926, p. 959, and in Thorpe's Dictionary of Applied Chemistry.

C. O. L. (31/1).—The appearance of "weathered oak" or "lime polish" may be imparted to wood by applying a thick mixture of quicklime and water evenly and quickly with a flat brush. When dry, the lime is removed by means of a stiff brush. Another method, known as "dry liming," consists in damping the wood and applying the quicklime in the form of powder. The appearance produced by this process is liable to vary with different varieties of oak.

Retrospect of Fifty Years Ago

Reprinted from "The Chemist and Druggist," February 23, 1889

Epsom Salts

Of late years the price of sulphate of magnesia has been steadily tending downward. About thirty years ago the quotation averaged about £9 per ton, but in 1888 the chemical could be purchased as low as £3 per ton. Since then, however, the cost of nearly all the articles used in the manufacture of the salts, including the raw material itself, has been much enhanced, so that even the advance of about 25 per cent. now agreed upon does not, the manufacturers aver, do much more than cover the increased outlay which they themselves are incurring. The English makers have of late been severely pressed by the competition of German manufacturers of Epsom salts, who are, we should think, placed in quite as favourable a position as our own in the matter of raw material, for while dolomite, or mountain limestone, is found in abundant quantities in this country, and is available at a comparatively small cost to our makers as a source of the salt, the Germans have a practically inexhaustible source of supply of crude material in the kieserite of the Stassfurth mines.

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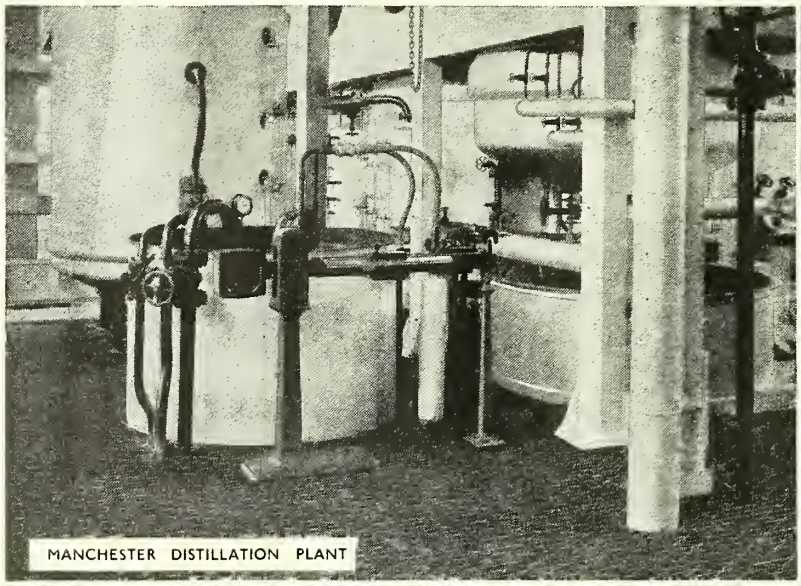
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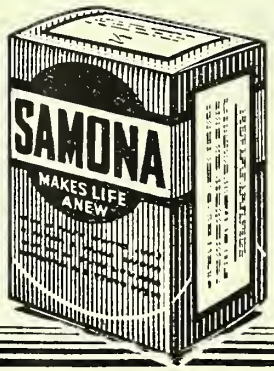

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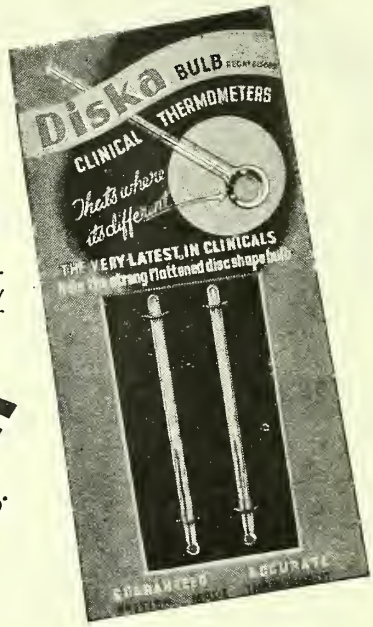

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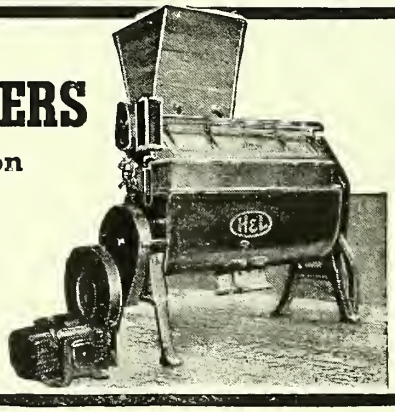

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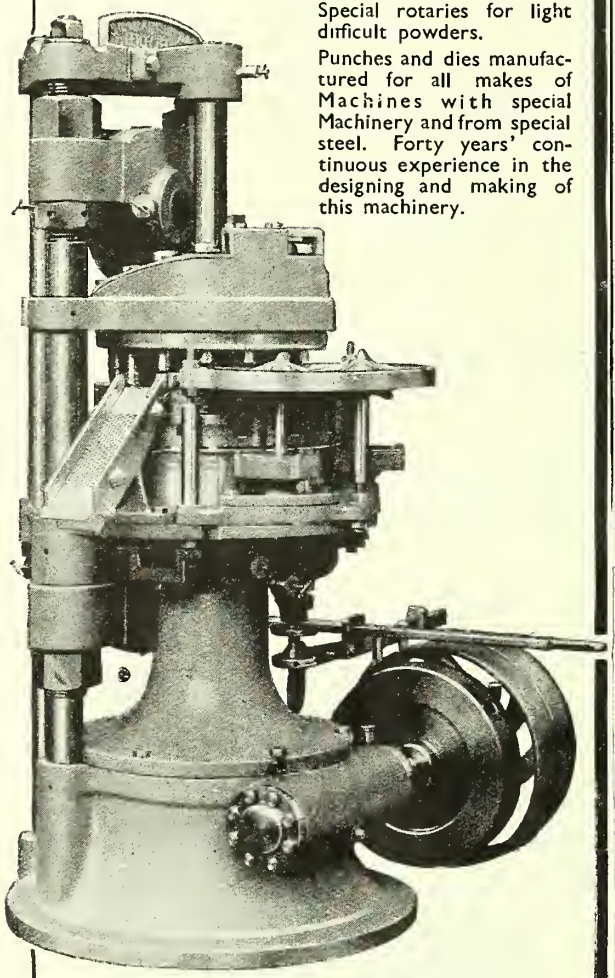

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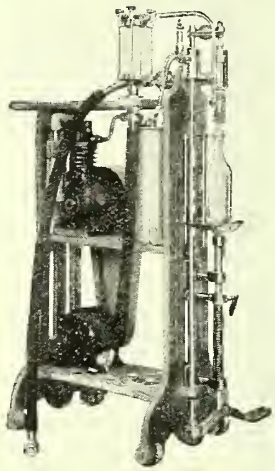

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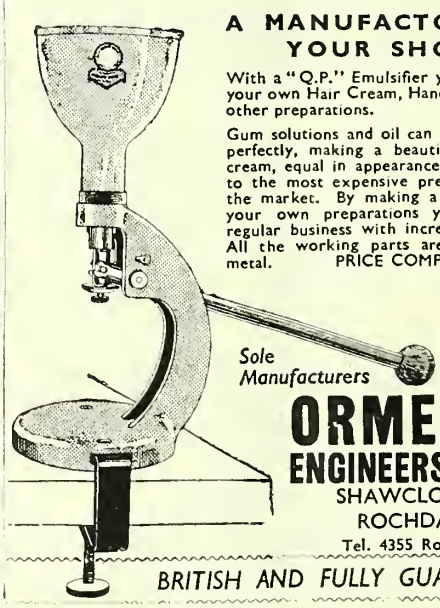

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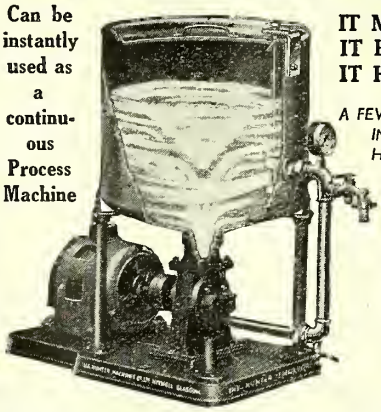

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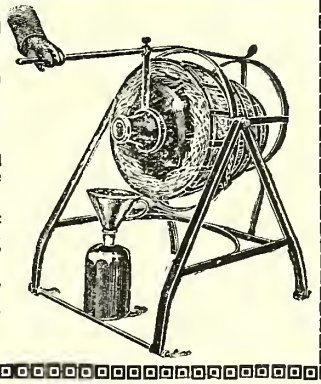

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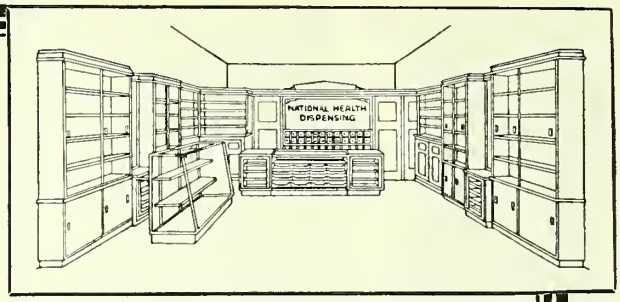

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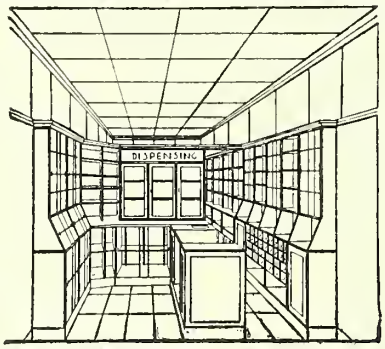

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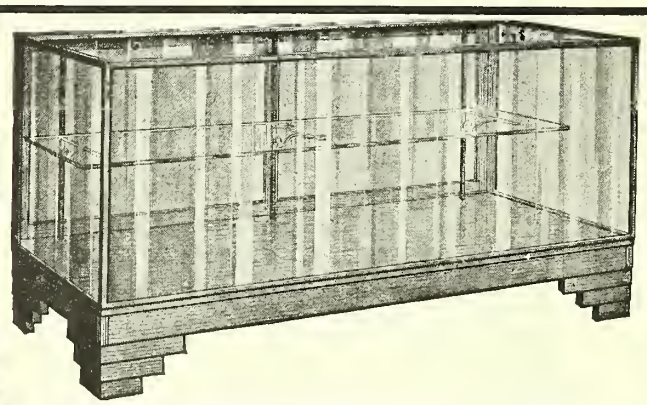

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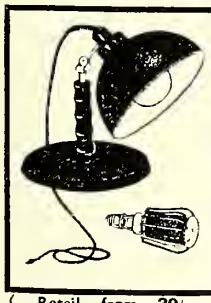

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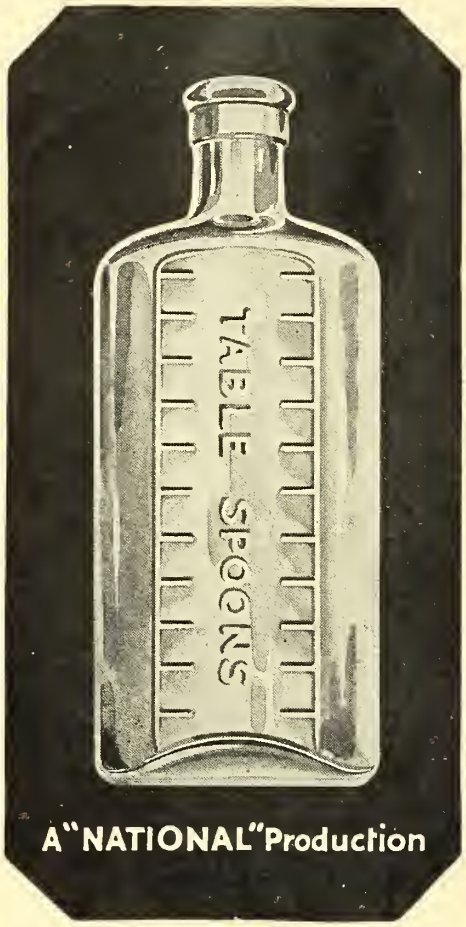

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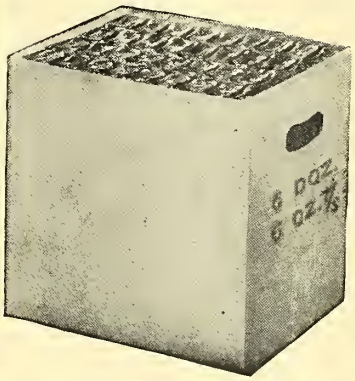

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